North Shenandoah Mountain Restoration and Management Project

Draft Environmental Assessment Comments and Concerns

This document contains the Forest Service's responses to substantive comments that were received during the two comment periods for the North Shenandoah Mountain Restoration and Management Project (North Shenandoah) Draft Environmental Assessment (DEA) (Forest Service, 2019a.).

An email and hardcopy letters were sent out and a legal notice was published in Harrisonburg, VA *Daily News Record* on Friday, August 16th, 2019 to notify interested parties of the availability of the North Shenandoah EA. This initiated the first comment period, which ended on September 16th, 2019.

Due to inadvertent errors in how individuals were notified and a technical glitch with the system used for comment submissions, the District thought it prudent to provide the public an additional 30 day comment period. This second comment period ran from September 25th to October 25th.

The Forest Service received correspondence from twenty-seven individuals, organizations, and agencies. These comments have been analyzed and responded to using a process called content analysis. All notable comments were assigned a unique contact number generated from the correspondence number and the comment number (e.g. 01-#38-02 would be the second comment identified from the 38th letter received during the first comment period). Commenters and their associated organizations are shown in Table 1, below.

Similar comments were grouped together and for each group a concern statement was developed. Concern statements are meant to capture the thought, idea, or issue common to all of the associated comments. They often represent the view of many respondents, but may also be derived from just one person's input. Concern statements provide the framework for preparing responses to public comment.

Comments may:

- Identify issues (cause and effect relationship between proposed action and effects);
- Suggest alternative ways to conduct the action, or lessen the impacts of the action through mitigation or project design feature;
- Suggest a method to measure effects; and/or,
- Provide new information for the interdisciplinary team to consider.

Not all comments are relevant to the decision; comments are not relevant (non-substantive) if they are:

- Beyond the scope of the proposal;
- Unrelated to the decision being made;
- Already decided by law, regulation or policy;
- Conjectural in nature or not supported by scientific evidence; or,
- General in nature (not specific to this project) or position statements not supported by reasons.

Table 1. Respondents to the North Shenandoah Mountain Restoration and Management Project Draft Environmental Assessment

Letter #	Author Name	Organization Name	Date Submitted
First Comment Period (8/16/19 to 9/16/19)			
01-#01	Feasel, Darrel		8/15/2019
01-#02	Feasel, Darrel		8/15/2019
01-#03	Sprinkle, Richard		8/17/2019
01-#04	Brown, Charles	Highland Drummer Chapter of RGS	8/17/2019
01-#05	Frazier, Dolly		8/23/2019
01-#06	Green, Daniel		9/6/2019
01-#07	Dunlop, Darren		9/9/2019
01-#08	Feasel, Darrel		9/11/2019
01-#09	Cameron, Lynn	Friends of Shenandoah Mountain	9/14/2019
01-#10	Bourgeois, Albert		9/14/2019
01-#11	Miller, Mark	Virginia Wilderness Committee	9/16/2019
01-#12	Flippin, Jennifer		9/16/2019
01-#13	Morris, Paul & Ramona		9/12/2019
01-#14	Davis, Kristen	Southern Environmental Law Center	9/16/2019
01-#15	Krichbaum, Steven		9/16/2019
01-#16	Bamford, Sherman	Virginia Chapter of Sierra Club	9/16/2019
01-#17	Bamford, Sherman		9/16/2019
01-#18	Sisson, Joseph		9/13/2019
01-#19	Simmons, Pamela		9/13/2019
01-#20	Plank, Raymond		9/13/2019
01-#21	Plank, Susan		9/13/2019

Letter #	Author Name	Organization Name	Date Submitted
Second Comment Period (9/25/19 to 10/25/19)			
02-#01	Feasel, Darrel		9/25/2019
02-#02	Hewitt, Chris		9/27/2019
02-#03	Feasel, Darrel		9/29/2019
02-#04	Stover, Roger		10/21/2019
02-#05	Ordiway, Linda	Ruffed Grouse Society	10/22/2019
02-#06	Nielsen, Anne W.		10/22/2019
02-#07	Bolgiano, Chris		10/24/2019
02-#08	Sligh, David	Wild Virginia	10/25/2019
02-#09	Hypes, Rene	DCR-Division of Natural Heritage	10/25/2019
02-#10	Loving, Joy	Climate Action Alliance of the Valley	10/25/2019
02-#11	Smyth, Blair	The Nature Conservancy	10/25/2019
02-#12	Krichbaum, Steven		10/25/2019
02-#13	Davis, Kristen	Southern Environmental Law Center	10/25/2019

General

<u>General - #1:</u> These comments express support for the North Shenandoah Mountain Restoration and Management Project.

01-#01-02 I would support any effort that creates a healthy forest habitat for Ruffed Grouse, American woodcock and other wildlife.

01-#03-01 This well thought out and researched project

01-#08-01 In regards to the planning effort for the North Shenandoah Mountain Restoration Management Project, I would support any effort that creates a healthy forest habitat for Ruffed Grouse, American woodcock and other wildlife.

01-#09-01 FOSM is pleased to see completion of the Draft Environmental Assessment for this large landscape level project. We appreciate the meetings and field trips you organized to provide us and others with an opportunity for input. We attended most of these. Thank you for taking public comments into consideration as you developed the project

01-#10-01 I'm very supportive of large landscape level projects on the national forest that include numerous resource development and enhancement activities. The proposed actions listed in the scoping notice should improve habitat diversity and forest health and I support the different projects proposed.

01-#11-01 the stands in the project area tend to be older with more closed canopy. This project should help move the forest toward to more desired conditions as laid out in the Revised Forest Plan.

01-#11-02 We support the use of active management techniques including various mechanical treatments such as Timber Stand Improvements, Commercial Thinning, and Regeneration Harvests to achieve desired results. We also support and appreciate the District's commitment to removing existing old growth from proposed harvest units[...]We support the use of prescribed fire to achieve desired results.[...]We support restoration of shortleaf and other yellow pines in the project area.[...]We support the proposed stream restoration work included in the project including removal of unneeded or inaccessible roads[...]We also support all efforts designed to prevent timber harvest or ground disturbing activities in protected riparian corridors for perennial and intermittent streams, and only partial harvest is allowed within channeled ephemeral corridors.[...]We also support the Agency's ongoing efforts to protect the Cow Knob Salamander.

01-#14-09 As we have emphasized in prior comments, we support ecological restoration as a primary goal for the project. We are glad the project is "aimed at improving watershed conditions, restoring habitats for a diversity of terrestrial and aquatic species, [and] increasing resilience in ecological systems." We appreciate that the scoping notice references certain current conditions of the project area, desired conditions set forth in the Forest Plan, and the Ecological Departure Analysis (EDA) for this project area.

01-#16-01 We are supportive of the collaborative nature of the project and look forward to positive results from this kind of process, incorporating many diverse stakeholders.

01-#21-01 I would like to thank the North River District for the work they have done on the North Shenandoah Mountain Project Plan.

02-#01-01 I would support any effort that creates a healthy forest habitat for Ruffed Grouse, American woodcock and other wildlife.

02-#02-01 I am in FULL support of this project proposal.

02-#05-01 The management activities in alternative 1 are supported by the Ruffed Grouse Society (RGS).

02-#08-01 We also echo the expression of appreciation in the SELC comments of plans to improve connectivity in streams by replacing culverts through this project.

02-#11-01 We applaud the collaborative process that has shaped the project thus far

02-#11-02 In general, we are supportive of the overall scope of work proposed in this EA

02-#12-11 The proposal to reintroduce American Chestnut to the GWNF is an excellent idea.

02-#13-01 we appreciate the District's efforts to reduce negative impacts to and improve conditions for wood turtles in the Slate Lick area.

02-#13-07 We look forward to this project moving forward and continued collaboration with the District and other stakeholders.

Response: Thank you for your comments and your support for the North Shenandoah Mountain Restoration and Management Project. We appreciate your interest and participation in the planning process.

General - #2: These comments were determined to be non-substantive.

01-#03-02 With all of the acres of National Forest in the George Washington and Jefferson National Forests adjoining Roanoke and the surrounding counties, I think it is extremely important that forest management that has been ignored for years be put back on track to restore the health of the forests we have been blessed with.

01-#04-01 Creation and maintenance of ecological biodiversity forest is critical for the future of all our forest lands. Where there is no vision people perish

01-#05-01 It is possible to lose 2,900 tons of soil per square mile annually in a forest.[...]Without the trees holding the soil in place the area will become depleted and left with only rocky slopes. It takes 100 years to produce 1 inch of topsoil.[...]At the meeting one of the foresters stated that carbon sequestration is preformed better by rapidly growing young trees. Most experts agree that the old growth forests with complex root systems along with soil best helps us clean the air of

carbon dioxide. The best way to combat climate change is by planting trees and by not destroying forest ecosystems.

02-#05-06 On Page 22 regarding permanent opening definition and classification these should not be considered as early successional habitat. There is nothing successional about these. The structure and design in maintaining these openings does not permit the natural successional process. It retards it and these should be referred to as grass lands or keep the designation of permanent openings but do not include in young regenerating forests or early successional habitat.

02-#06-01 All I have written is common knowledge to anyone likely to read this

Response: The comments above are general or conjectural in nature, or are position statements not supported by reasons.

01-#06-02 I will also say very adamantly that the forest service is not considering the disabled and aging well in their planning. These roads for generations have been a source of recreation for the aging who don't have the ability to hike many miles, especially given the decision to change the requirement needed to gain access to the disabled hunting gates. Which I might add I feel is a great misappropriation of resources, having 3 disabled areas within a 20 mile radius that essentially are not being used. Having a lifetime disabled hunting license was a very reasonable requirement in my opinion, changing it to its current format using the DGIF permit that is basically only available to the paralyzed serves no one, not even them.

01-#07-01 how can there be any true conversation if you cant give a batter scope of how much it will cost?

01-#09-05 we hope that the GW/Jeff will soon officially add Carr Mountain Trail to the trail system in the North Shenandoah Mountain area .

01-#11-04 We also welcome efforts to reintroduce the American chestnut, which currently is constrained to the understory due to disease. Any attempts to reestablish their place in the forest canopy is appreciated.

01-#11-08 we would also like to see the addition of the Carr Mountain Trail to the trail system in this area.

01-#11-11 As a part of the implementation of this proposal we would like to see periodic updates

01-#21-02 I feel that the stream bed leading up to and past the Blue Hose Swimming Hole along with the swimming hole itself in Bergton needs repair work.

Response: The comments above are unrelated to the decision being made; they address issues not present within the project area.

01-#15-10 The "desire" for extremely sparse canopy conditions in older forests here is not supported by the information in the standard scientific references - Eastern Old Growth: Prospects for Rediscovery and Recovery, edited by Mary Byrd Davis 1996 Island Press, and Ecology and Recovery of Eastern Old-Growth Forests, edited Andrew Barton and William Keeton 2018 Island Press (incorporated by reference) or by examination of remnant old growth in the Central Appalachians. This is not actual restoration of natural conditions.

01-#15-13 The FS planners must fully and fairly address the direct, indirect, and cumulative impacts of acidic precipitation and deposition upon many taxa, such as trees, herbs, lichens, snails, birds, reptiles, and amphibians

01-#15-18 What is the agency's rationale for concentrating on some variable floristic composition pre- and post-burn, but showing no apparent concern or consideration for the killing of numerous animals during the fire? This is an ethical issue with on-the-ground ramifications. It is also an issue involving important values held by the public. This concern with controversial and uncertain aspects must be fully and fairly evaluated.

01-#16-33 the Forest Service should recognize the uniqueness and rarity of the Shenandoah Mountain Complex[...]the FS does not examine the direct or indirect impacts to any Virginia mountain treasure areas and remote areas except Beech Lick Knob

01-#16-34 The FS should identify all inventoried roadless areas, uninventoried roadless areas, and unroaded areas (as defined in RACR, the RACR FEIS or similar guidance) of any size, should identify the roadless characteristics of all of these areas, and should analyze the impacts of this project and other activities/events on these areas. The FS should analyze the impacts of the project on wilderness eligibility.

01-#16-35 The Forest Service should recognize and consider the unique ecological values associated with designated and de facto roadless areas within what is otherwise a heavily roaded and fragmented national forest system.

01-#16-36 You must address projects impact on these critical ecosystem features by closely examining land beyond the immediate analysis area and considering the cumulative landscape-scale effects of continued habitat destruction within and adjacent to unroaded forest land in the JNF.

02-#07-02 Much of the southern end of Cross Mountain already has this "savanna-like" condition with poorly formed, widely spaced trees and joint grass understory due to careless logging, grazing and burning in the past. Why should that abused and degraded condition be considered "restoration" and the "desired condition" to be replicated elsewhere?

02-#07-03 The policy of opening up the canopy of natural, well-established oak-hickory-white pine forests for poorly defined and scientifically questionable "restoration" purposes, then planning the endless eradication of invasives through applications of herbicides, seems ecologically irresponsible with potential long-term detriments to the ecosystem.

02-#10-01 At a minimum, the FS should document both the advancements and the impacts and address if/how the 2014 plan continues to be optimal.

02-#12-08 This proposal as currently configured is a perfect example of why the Wood Turtle needs to be listed under the federal ESA - neither the states nor the federal agencies are affording it reasonable protection.

02-#12-12 I am also concerned about the mounting cumulative impacts to GWNF Virginia Mountain Treasures.

02-#13-04 What is the status of road construction and decommissioning across the GWNF under the new plan? The Plan is now five years old, meaning we are now halfway towards the end of that first decade. Is the Forest halfway towards the above goals?

Response: The comments above address issues that are beyond the scope of the proposal.

Climate Change

Climate Change - #1: The Forest Service should analyze all processes implemented in this project for climate change impacts.

02-#07-04 How much carbon will be emitted from the planned prescribed burns, and how does that amount compare to carbon now and potentially in the future being sequestered and stored in soil by the existing mature trees if allowed to grow old?[...]Please provide data on the estimated loss of carbon from proposed burning and the rate of sequestration now being performed in those stands as part of the analysis.

02-#08-03 The fact that a forest-wide planning process has been conducted on an issue, in this case climate change, does not justify the FS in failing to include any discussion of that same issue in a project-level EA. Some discussion of this project's consistency with that broader plan and of any new factors or information that has become available since that forest-wide review was completed is vital to understand this project's relation to climate change.

02-#10-03 questions arise as to the carbon emission amounts that the FS anticipates resulting from each of its planned actions and what effect do those amounts have given the lost carbon sequestration from the loss of the trees burned or timbered, especially from what mature trees would sequester if allowed to grow older?[...]The FS must understand, quantify, and publicly provide the anticipated impacts on CO2 emissions and sequestration before it proceeds with finalizing and implementing the plan.

02-#13-06 The District must analyze the potential impacts, including cumulative impacts, of this project on climate change and insure adequate information about climate change effects is available to the public for review.

Response: Considerations of forest management impacts to climate change are most meaningful in relation to the carbon cycle as this is the main greenhouse gas (GHG) exchanged from a forested system.

An analysis of carbon effects from this project was completed which will be provided as a specialist report with the issuance of the final Environmental Assessment. This analysis tiered to the more comprehensive quantitative assessment of forest carbon stocks and the factors that influence carbon trends (management activities, disturbances, and environmental factors) for the George Washington and Jefferson National Forests (GWJNF) which is available in the project record (Dugan et al., 2019).

To summarize the findings of the project scale carbon effects analysis, this proposed project affects a relatively small amount of forest land and carbon on the GWJNF and might temporarily contribute an extremely small quantity of GHG emissions relative to national and global emissions. This proposed action will not convert forest land to other non-forest uses, thus allowing any carbon initially emitted from the proposed action to have a temporary influence on atmospheric GHG concentrations, because carbon will be removed from the atmosphere over time as the forest revegetates. Furthermore, the proposed project will transfer carbon in the harvested wood to the product sector, where it may be stored for up to several decades and substitute for more emission intensive materials or fuels. This proposed action is consistent with internationally recognized climate change adaptation and mitigation practices.

Geology

Geo - #1: The Forest Service should provide for public review the complete analysis for effects to limestone caves or other karst features.

01-#16-05 Please thoroughly explore whether this project could impact any cave or karst areas.[...]The DEA states than there are not "any sinkholes, limestone caves or other karst features in proposed timber harvest units (502 and 505) or in any area of the proposed action." [...]All cave systems in the area should be identified and analyzed.

Response: As noted in both the Draft EA (Forest Service, 2019a.) and the Geology Specialist Report (Forest Service, 2019f.), field work conducted for this project has not found any sinkholes, limestone caves, or other karst features in proposed timber harvest units (502 and 505) or in any area of the proposed action. If sinkholes or karst caves are found during the implementation phase of the project, the karst resources, including groundwater, would be protected by Forest Plan standards including FW-71 and FW-117.

Heritage

Heritage - #1: The Forest Service should provide for public review the complete analysis for effects to cultural/archaeological resources to support the finding of no significant impact (FONSI).

01-#16-20 the FS does not disclose how far cultural/archaeological resources are from the extensive road/fire line system for this project or from cutting units, and does not analyze whether the increased access will heighten the likelihood that existing cultural resources will be discovered and harmed.[...]Complete cultural resources surveys should have been completed which satisfy the terms of the National Historic Preservation Act, and other laws regarding cultural

resources, Native American cultural resources, religion, and traditional practices and their implementing regulations.

02-#07-05 Has the Forest Service archaeologist investigated Native American presence and burning in the proposed burn areas? If so, where is the resulting report, and if not, why not, since this is a major factor in location of historical burns?

Response: The Forest Service analyzes the potential impacts to cultural and heritage resources, as required by the National Historic Preservation Act. Due to the sensitive nature of this information, the results, but not the analysis, are disclosed in the Environmental Assessment document (Forest Service, 2020.). All of the areas designated for any form of disturbance, including mechanical disturbance from controlled burns, have been surveyed for cultural resource and/or archaeological evidence. No unique evidence designating Native American or pre-industrial historic patterns of fire use are in existence. It was determined that the proposed actions will not adversely affect significant scientific, cultural, or historical resources.

Motorized Use

Motor - #1: The Forest Service should consider the potential effects of illegal motorized use within the project area. Temporary roads should be gated to control access.

01-#16-09 Poaching and other wildlife disturbing activities are not even mentioned. These relevant factors must be fully and fairly considered.

01-#18-01 regarding the leading Ridge Working Area. We understand that there is to be a temporary road created in order to get to the proposed forest stand improvement area, thinning area and SL & TM pine restoration area. At present, there are illegal ATV trails in that area. Once the temporary road to that area is created, we still feel that there needs to be a gate with limited access.

01-#21-06 I suggest that a gate be put across the temporary road that is to be created on Leading Ridge.

02-#12-17 The agency typically glosses over impacts from the clear potential that a project has for increasing illegal motorized use, such as from ATVs, and associated criminal activity such as poaching.[...]The cumulative impacts of all this may be significant. The analysis and disclosure must clearly analyse and disclose the cumulative impacts to remote habitat, interior habitat, and disturbance-sensitive species in MAs 13.[...]The agency must fully and fairly consider the proposed project's potential to foreseeably increase illegal motorized use (especially ATVs). There is clearly a potential for significant harm to remote habitat, disturbance- sensitive wildlife, roadless area values and character, feelings of solitude, serenity, and remoteness, and to wildlife security.[...]The Forest Service must fully and fairly consider the direct, indirect, and cumulative impacts of the proposed action from facilitated OHV use and poaching.

Response: Motorized use on the North River Ranger District is managed according to direction contained in the 2014 *Revised Land and Resource Management Plan* for the George Washington National Forest (referred to as the Forest Plan) (Forest Service, 2014a). This direction includes Forestwide Standards in Chapter 4 that restrict all-terrain vehicles (ATVs) to specifically designated roads and trails (FW-177) and that prohibit cross-country motorized use except in the case of emergency (FW-178). However, the District understands concerns with regard to motorized access on the Forest; Standard FW-227 states that all existing open roads and trails should remain open for public travel unless there is an issue with regard to resources damage, public safety, or legal right-of-way. Standard FW-229 describes the conditions under which a road may be seasonally or temporarily closed to motorized public use. It is not known if unauthorized encroachments may increase as a result of project activity, however, that does not preclude the agency from doing its duty to protect the National Forest through regulation and enforcement of policies.

Temporary roads will be used on a short term basis to accomplish specific goals (timber harvesting). Temporary roads will be retired upon completion of need including some, or all, of following activities: the following: installing water diversions: revegetating exposed soils; barricading/blocking entrance with an earthen berm, rocks, etc.; recontouring slopes. Gating of temporary roads will be considered during project implementation if other access control measures are not available. Permanent gating of temporary roads is not predicted to prove more effective than using the closure measures listed above.

NEPA

NEPA - #1: The Forest Service should analyze additional alternatives to the proposed action, including an alternative that increases the amount of timber harvested, an alternative that excludes logging or prescribed fire treatments in specific areas, an alternative that does not construct any new roads, an alternative that better protects wildlife and other specific resources, and an alternative that directly address the threat of non-native invasive species.

01-#10-02 At the August 22, 2019 public meeting the FS noted there would be 1,259 acres of regeneration harvesting done in this area. The September 15, 2017 scoping identified 1,470 acres to be regenerated.[...]I would like to recommend the FS consider two options: 1) add additions units to proposed timber harvests areas or add additional timber harvest areas, and 2) increase the size of regeneration harvest units within the proposed timber harvest areas.

01-#12-01 Alternatives should be provided for each working area.

01-#12-10 Observational data including presence of native brook trout and a diverse and a sensitive macroinvertebrate assemblage indicate that at least two streams in the Kettle Creek watershed (Lick Run and Buck Lick Run) also contain coldwater habitat. Similarly, Little Rough Run historically served as habitat for brook trout. The proposed thinning, regeneration, and forest stand improvement activities should be removed from these watersheds to prevent adverse impacts to these brook trout populations.

01-#14-07 If the District wants to move forward with this project more expeditiously, it could consider dropping management units in close proximity to the right of way[...]If considering this option, the District should consult with bee experts within VDNH and/or elsewhere to identify which management actions and units should be avoided.

01-#15-06 The need for alternatives that meaningfully address public issues was illegally swept under the rug[...]An alternative(s) that did not include road building was not developed in full. An alternative(s) that did not include logging in Virginia Mountain Treasures was not developed in full (and the single action alternative even proposes logging in the sole recommended Wilderness Area). An alternative(s) that did not include cutting of older forest that will soon be old growth was not developed in full (recutting of current esh or mid-successional forest was not fully and fairly considered). An alternative(s) that did limited burning to actual fire-dependent communities was not developed in full.[...]an alternative(s) that did not include road building and cutting within 300 meters of occupied Wood Turtle streams was not developed in full.

01-#15-09 In addition to not burning their habitat, the FS should refrain from logging mature and old-age forest in the terrestrial areas around streams that they typically use (i.e., the zone within ca. 300m of the streams).[...]Ground disturbing activities need to occur when the Turtles are aquatic (November-March).

01-#16-11 Additional alternatives with less disturbance should have been considered to reduce the introduction and spread of invasives.

01-#16-15 A comprehensive, integrated policy that specifically includes the halting or significant curtailment of logging, roadbuilding, road construction, grazing allotments, mineral development, ORV riding and other activities that contribute to the spread of noxious weeds should have been considered.

01-#16-16 The NEPA document must meet NEPA's requirements that a reasonable range of alternatives be fully analyzed.

01-#16-43 A full range of alternatives has not been considered. Only a single action alternative and a no-action alternative is studied. (DEA). Other alternatives could have been considered that better protect caves and karst; black bears; native species susceptible to invasive species; salamanders; TESLR species; bats; cerulean warblers; NTMBs; cultural resources; riparian areas; remote habitat and Virginia mountain treasure areas; trout; aquatic species; amphibians; wood turtles; old growth; steep or landslide prone slopes, and other issues raised in our comments. No action alternative except the single extensive-logging/high roadbuilding action alternative was considered

02-#12-10 If any cutting is actually needed for "restoration" at this project area, it should be accomplished through "structural complexity enhancement" (SCE) treatments.[...]Such restoration involving cutting that facilitates the development of natural old- growth forest conditions could be examined in an alternative and it's various benefits and results compared

to and weighed against other alternatives. The reason for not fully and fairly examining and considering the SCE option is not clear.

02-#12-25 The NEPA commands federal agencies to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternate uses of available resources." 42 U.S.C. § 4332(2)(E) (2005). The agency must rigorously explore and objectively evaluate all reasonable alternatives. See 40 C.F.R. § 1502.14. The NEPA regulations also require that: Federal agencies shall, to the fullest extent possible: [u]se the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment.[...]40 C.F.R. § 1500.2(e) (emphasis added). This statutory requirement to study alternatives is independent of and broader than the requirement to prepare an environmental impact statement. Consideration of a reasonable range of alternatives in environmental analyses is critical to the goals of NEPA. See 40 C.F.R. § 1508.9(b). The CEQ's NEPA regulations instruct federal agencies to "[u]se the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment." 40 C.F.R. § 1500.2(e) (applicable to EAs and EISs). In addition, consideration of alternatives is "the heart of the [EIS]. 40 C.F.R. § 1502.14. Agencies "shall" "rigorously explore and objectively evaluate all reasonable alternatives." §1502.14(a). During scoping, the Forest Service should explore alternatives and their environmental effects, and, with public participation, identify reasonable alternatives that will be considered in environmental documentation. See F.S.H. 1909.15 § 11, § 12.3c, § 14; also see 40 C.F.R. § 1508.25.

02-#12-26 I request that you develop in detail (and implement) an alternative that does not involve any road construction and/or reconstruction and that withdraws "areas" from cutting that are in or adjacent to an SBA or that involve old growth tracts or old age sites.[...]the Forest Service also needs to examine in detail an alternative(s) that avoids CK Salamander and SM Salamander habitat.[...]the Forest Service also needs to examine in detail an alternative(s) that avoids Virginia Mountain Treasure areas.[...]the Forest Service also needs to examine in detail an alternative that that drops road construction and reconstruction and does not do regeneration logging but instead fabricates a small number of small permanent openings vegetated for wildlife.[...]Such alternatives are in compliance with the Standards in the Plan. They respond to significant issues. They also lead to goals, objectives, and desired future conditions for this management area (see LRMP), as well as meet purposes and needs.[...]the Forest Service needs to examine in detail an alternative that recuts places that were cut 21-30 years ago in order to fabricate new 0-10- years old age class habitat for wildlife

02-#13-02 we urge the District to consult with Dr. Krichbaum regarding necessary measures and to consider an alternative including the measures he describes. These include but are not limited to: a 300-meter buffer around occupied wood turtle streams in which road building and timber harvest would not occur and avoiding prescribed burns in wood turtle habitat.

02-#13-03 The District should consider an Alternative that does not construct or "adopt" new system roads or at least decreases this amount to the absolute minimum.

02-#13-05 given the presence of mile-a-minute and other non-native invasive species in the area off of Little Shoemaker Road (FSR 555) and the threat of spreading NNIS into the Shoemaker River watershed and connected drainages, we are particularly concerned about constructing new road in this area. The District should consider an alternative that does not propose road construction here.

Response: We are required by the National Environmental Policy Act (NEPA) to explore and evaluate reasonable alternatives to the proposed action when there are *"unresolved conflicts concerning alternative uses of natural resources."* In our analysis, we have not identified any such conflicts.

Although we are not required to analyze a "No Action" alternative for an Environmental Assessment (EA), this alternative was considered in the North Shenandoah project. The consideration of a "No Action" alternative is only a requirement for an Environmental Impact statement (EIS). Forest Service Handbook direction states at FSH 1909.15 – Ch. 10 § 14.2 that "*The EA may document consideration of a no-action alternative through the effects analysis by contrasting the impacts of the proposed action and any alternatives(s) with the current condition and expected future condition if the proposed action were not implemented. (36 CFR 220.7(b)(2)(ii)*".

Public comments that describe issues of concern help us identify alternatives, although we are not required to analyze these alternatives in detail provided that we briefly discuss the reasons for dismissal from analysis. These could include: that it does not respond to the project purpose and need; it is duplicative of the alternatives considered in detail; or it does not conform to existing law, regulation, or policy such as the 2014 *Revised Land and Resource Management Plan* for the George Washington National Forest (referred to as the Forest Plan) (Forest Service, 2014a). A list of the alternatives eliminated from detailed study, including additional vegetation treatments in the German River Working Area, additional road decommissioning, recreation infrastructure improvements, a focus on maximizing early successional habitat, and treatment of hemlock (*Tsuga spp*.) to combat hemlock woolly adelgid (*Adelges tsugae*), is included in the *Alternatives* section of the EA (Forest Service, 2020) under the heading Alternatives Considered but Eliminated from Detailed Study. We identified no other reasonable alternatives that would adequately address the purpose and need.

NEPA - #2: The Forest Service should undertake an Environmental Impact Statement for this project, as an Environmental Assessment is not adequate due to the magnitude of this project, significant uncertainties, potential for significant impacts, and controversy.

01-#15-12 Due to the magnitude of the proposed actions and their attendant effects, and the lack of consideration of alternatives, significant impacts may occur to the Forest and its biota and I would be harmed: an EIS needs to be prepared.

01-#17-01 Because of the magnitude of this project[...]an EIS is warranted for this project. The actions proposed in this project are highly controversial and the environmental effects are uncertain, with potential adverse effects on salamanders, amphibians, reptiles and other species due to the extensive burning and due to short leaf pine conversion proposed here.

02-#12-04 Due to these significant uncertainties, preparation of an EIS is necessary.

02-#12-27 Due to the potential for significant impacts to a "very rare and imperiled" species an EIS should be prepared.

Response: An Environmental Impact Statement (EIS) is appropriate when the effects of a project are determined to be environmentally significant; not due to size, duration, or public controversy. The purpose of an Environmental Assessment (EA) is to determine if the effects from a project would be environmentally significant. For the North Shenandoah project, the conclusion was that the effects would not be significant. The only controversy that would indicate that an EIS might be appropriate is when there is legitimate scientific controversy regarding the effects.

An EIS does not necessarily involve a more in-depth analysis. It does, however, preclude the need to avoid significant environmental impacts since there is no Finding of No Significant Impact for an EIS, merely a description of impacts. The purpose of an EIS is to thoroughly analyze significant impacts and any alternatives that might help minimize or avoid them. To prepare an EIS takes a much greater amount of personnel time and money, requires review by the Environmental Protection Agency (EPA) and multiple notices in the Federal Register, and yet provides no advantage in the outcome. There is no benefit to preparing an EIS when there appear to be no significant impacts. Undertaking an EIS could add an additional two to three years to this project from this point and would not likely result in a substantially different proposal.

NEPA - #3: The Forest Service should describe how the project areas were chosen and how the project is consistent with the 2014 *Revised Land and Resource Management Plan* for the George Washington National Forest.

01-#12-02 It is not clear how project areas were chosen nor the rationale for selection of specific tracts for thinning activities. Additionally, it is not clear why thinning activities were chosen instead of another endpoint such as improvement of aquatic habitat.

01-#16-32 The FS should demonstrate how the project is consistent with the GWNF Plan.

02-#12-15 The decision to build more road mileage into this area and facilitate more motorized access is not consistent with the Plan condition desired for this area of Forest.

Response: The North Shenandoah project was identified as an area of interest by the GW Forest Stakeholders Group and the Forest Service for a couple of reasons. The project area represented an area where diversity in forest structure was lacking and no significant management treatments had occurred there in some time. It also presented important opportunities to improve aquatic habitat and water quality by installing aquatic organism passages, replacing road culverts and decommissioning problematic roads. Initially, recreation management was also included; however, the decision was made to defer that part of the analysis to another time.

<u>NEPA - #4:</u> The Forest Service should continue to use a collaborative process to plan and implement projects on the North River Ranger District.

01-#09-06 Given the collaborative nature of this project, FOSM urges the District to commit to continuing this collaboration throughout implementation,

01-#11-10 Given the collaborative nature of this project, the District should be sure to continue the collaboration into implementation

01-#14-15 we strongly urge the District to commit to continuing this collaboration throughout implementation.

01-#16-02 Given the collaborative nature of this project, the District should commit in the Decision Notice to continuing this collaboration throughout implementation[...]This should include commitments to notifying project participants when any of the North Shenandoah projects are scheduled for implementation, when cutting units are open, and when logging operations are planned. The District should also commit to hosting and inviting project participants to fieldtrips to discuss sale preparation activities such as unit layout, marking, stream management cones, the location of temporary roads and skid trails.

02-#11-06 We would ask that the Forest maintain the amount of public engagement as this project is implemented, with annual field trips and monitoring reports to the public.

<u>Response:</u> The District intends to continue to involve interested stakeholders during the implementation phase of the project. Additionally, the District has pursued collaborative funding opportunities for this project including Joint Chiefs and the Collaborative Landscape Restoration program.

<u>NEPA - #5:</u> The Forest Service should prepare a new Draft Environmental Assessment for this project and / or extend the comment period.

01-#12-06 Several documents included as part of the Draft Environmental Assessment materials were added to the website on 9/6/2019 (https://www.fs.usda.gov/project/?project=50342). The official comment period should be extended if these documents are to be reviewed as part of the Draft Environmental Assessment.

01-#16-03 In our November 6, 2017 letter to you, we requested copies of the biological evaluation, economic analysis, roads analysis, old growth surveys, monitoring records for special biological and Natural Heritage- identified areas in the area, and watershed assessments for priority watersheds in the area, as soon as they come available[...]we assume that if they had been prepared, they would have been sent to us pursuant to our request, or otherwise, no such documents exist. A new draft EA (DEA) informed by these documents should be prepared and the public should be allowed a comment period on the EA, once it is prepared.

<u>Response:</u> As noted above, specialist reports supporting the analysis were added to the website on September 6th, 2019, ten days prior to the closing of the comment period on September 16th, 2019. Since

the conclusions reached in these reports were contained in the Draft Environmental Assessment (Forest Service, 2019a.) document posted on August 15th, 2019, it was determined that sufficient time for public review was provided. However, due to inadvertent errors in how individuals were notified and a technical glitch with the system used for comment submissions, the Forest Service thought it prudent to provide the public an additional 30 day comment period. This second comment period ran from September 25th to October 25th, 2019.

Prescribed Fire

Fire - #1: The Forest Service should plan for the additional trail work needed to keep trails cleared after prescribed burns when they are used as containment lines.

01-#09-04 We have noticed that in the Hone Quarry area that repeated prescribed burning has resulted in trails becoming impassable due to loss of canopy, increased sunlight, and rapid growth of briars and other fast-growing vegetation.[...]Please take this into consideration by preventing fires from burning too hot and killing the trees beside the trail, by avoiding burning across trails, and by following up to keep trails cleared after prescribed burns. Only one trail would be affected in the NSM project, but it is one of only a few trails in the whole project area.

01-#11-07 using trails as fire breaks can create very brushy conditions, which sometimes make the trail difficult for users.[...]We value the various benefits, including ecological, of using trails as fire breaks instead of dozer lines, but request that the agency also plan for the additional trail work this may create for the future. [...]The agency should commit to completing any necessary post-fire rehab work on the trails as a design feature for this project.

02-#11-05 we have seen that prescribed fire can have a negative impact on trails, especially if the fire is allowed to burn across the trail.[...]Using a trail as a fire line can minimize the impacts, but if trails will be burned across, please consider more work post-burn to maintain the trail corridor.

Response: The Forest Service works hard to rehabilitate trails and control lines used for prescribed fire. The Forest Service maintains a robust trails program that aims to manage existing trails across the Forest. During the preparation for prescribed burns, hazard trees along trails are assessed and may be cut down to mitigate safety concerns. This benefits both firefighters during the burn and members of the public who may subsequently use the trail. We work closely with partners to accomplish this work and will continue to look for partnership opportunities to manage trails into the future.

Fire - #2: The Forest Service should ensure that they are meeting air quality standards and are notifying the public prior to implementing any prescribed burns.

01-#15-14 The Forest must make a conformity determination prior to implementing projects affecting air quality within areas designated as nonattainment or maintenance

01-#18-03 Regarding the Feltz Ridge and Leading Ridge Working Area proposed burns, we are still concerned for our livestock since the area to be burnt in some places is less than a mile from where the livestock is pastured. We are worried about the horses trying to get away from the smoke and possibly injuring themselves. According to the map this proposed burn is very close to our land and our neighbors. We would like to be notified when the proposed burns will be happening.

01-#19-01 Our biggest concern is with the proposed burn in the Feltz Ridge /Leading Ridge Working Area[...]We would like to be notified when the burn will happen

01-#20-02 Regarding the proposed burns in the Feltz Ridge and Leading Ridge Working Area, I request that I also be notified in advance

01-#21-04 Notify the local community, not just the adjoining landowners before the proposed burns

Response: The Forest Service adheres to state air quality standards and the USDA Forest Service Southern Region's Smoke Management Guidelines (Guidelines), dated September 2010 (Forest Service, 2010). The Guidelines require that burn plans be prepared to ensure that the smoke management objectives meet USDA policy that prescribed fires may not cause or contribute to an exceedance of a National Ambient Air Quality Standards. Burn planning would include the appropriate analysis procedures to evaluate downwind smoke concentrations to ensure protection of public health and safety.

The Guidelines require that smoke dispersion modeling be conducted for all burn units that would consume more than four tons per acre to ensure that the smoke management objectives previously set forth are met; if modeling shows potential impacts, adjustments or mitigations would be necessary in order to go forward with the burn. Each burn unit would be planned in accordance with the Guidelines such that specific parameters are met, including wind speeds and directions.

Additionally, communication plans are created well in advanced of ignition to ensure the public is notified of the prescribe burn activity.

Riparian and Aquatic

Rip - #1: The Forest Service should provide for public review the complete analysis for effects to riparian areas to support the finding of no significant impact (FONSI).

01-#12-03 If thinning and logging related activities are not to be performed in riparian areas of streams, then maps should be updated to reflect these buffer zones.

01-#16-22 It is unclear how riparian management areas, and stream conservation zones are delineated. Many of the resources associated with these features (and the natural shade within them) may be impacted by this project. How would resources associated with large or old trees such as these be affected? How would LWD be affected?

01-#16-23 The precise location of all the project area riparian areas in relation to cutting units and road sites is not disclosed. The FS does not explain why the full riparian areas are not being fully protected. The FS does not properly or accurately disclose foreseeable impacts.

Response: As stated in section B4 of the Environmental Assessment (EA) (Forest Service, 2020.), the proposed project was designed to avoid harvesting in floodplains, wetlands, and riparian areas through management following the Riparian Corridors Management Area prescription (MA-11) in Chapter 4 of the 2014 *Revised Land and Resource Management Plan* for the George Washington National Forest (referred to as the Forest Plan) (Forest Service, 2014a). See the Forest Plan for Forestwide and management area specific guidance, and Appendix A for implementation direction.

Channel classification was conducted using protocol from a field guide developed in conjunction with Forest Service research for all proposed harvest units to inform and delineate the proper riparian corridor width. This protocol and maps are part of the administrative record and will be used for project implementation. In all cases, the protected riparian corridor includes the true riparian area, and in most cases, it far exceeds the true riparian area as determined on the ground through vegetation, soil, and hydrology.

The riparian corridor and Forestwide Standards and Guidelines for channeled ephemeral streams were developed specifically to protect and maintain aquatic and riparian habitat structure and function. Following Forest Plan direction, the only trees cut in the core riparian corridor associated with timbering activities will be at designated locations associated with road or skid trail crossing the riparian corridor; this will allow all size trees to be available for the future natural recruitment of LWD, streambank stabilization, shade, and allochthonous detrital input. The project proposes to increase the amount of large woody debris (LWD) for wood turtle (*Glyptemys insculpta*) winter habitat (up to 20 pieces) within the range of the wood turtle in the project area.

Rip - #2: The Forest Service should provide for public review the complete analysis for effects to aquatic ecosystems to support the finding of no significant impact (FONSI).

01-#12-07 It does not appear that baseline data for Buck Lick Run or recent data for other local streams were collected. Thus the ability to quantitatively assess stream damage from proposed activities is extremely limited. Consider removing all thinning operations from the area around Buck Lick Run.

01-#12-08 The document states that Camp Run Reservoir in West Virginia is an 8-acre warm water fishery. While this is currently the case, it should not be assumed that the rest of the system supports or is natural habitat to warm water species.

01-#12-09 Please specify which streams within the Mitchell Knob and Camp Run Working area are considered as coldwater habitat or West Virginia wild brook trout stream.

01-#12-11 No data are available for Buck Lick Run which will, under the proposed activities, experience significant thinning activities. Lack of data for streams within the proposed thinning,

regeneration, and forest stand improvements mean that potential damages to the aquatic ecosystem in the proposed project area cannot be adequately assessed.

Response: Regarding Buck Lick Run, there will be no commercial timber harvest, including thinning, within the Riparian Corridor; see response to Rip- #1. Because of known wood turtle (*Glyptemys insculpta*) occurrences in the general area (Sugar Run, Dice Run, Buck Lick Run, Lick Run) and within the South Fork of the South Branch Potomac River, Dice Run and Little Camp Run within the North Shenandoah project area were surveyed on April 16th, 2019 by Forest Service and West Virginia Department of Natural Resources (WVDNR) personnel. No wood turtles were observed, however suitable instream habitat was identified.

An abbreviated survey of Little Camp Run was conducted above the confluence with Camp Run. Likewise, no wood turtles were observed, however suitable instream habitat was identified, and will be managed as per specific guidance in the Forest Plan regarding wood turtle management, and project specific design elements to mitigate negative impacts to this species (See the Design Element section of the Environmental Assessment (EA)(Forest Service, 2020)). Careful project implementation within these parameters will not lead to wood turtle habitat degradation or loss of viability. Within that area, Little Camp Run has been a benthic insect monitoring site (see Table 29 in EA), and sampled for baseline water quality in 2019, but that data was not available during project analysis. Below is that baseline information:

Field	Sample	Sample		ueq/L	ueq/L	ueq/L	ueq/L	ueq/L	ueq/L	ueq/L	ueq/L	ueq/L	ueq/L
Location ID	Location	Date	pH	ANC	Ca	Mg	Na	K	NH_4	Cl	NO_3	SO_4	Al
2049	Little Camp Run	4/2/2019	6.83	135.49	193.61	160.47	63.51	25.58	1.43	18.89	11.45	147.36	0.00

It is not possible with current capacity to include a benthic or water quality monitoring site on every stream within the project area, nor is it necessary. As detailed in the EA, long term extensive monitoring has shown no discernable negative effect on stream habitat and aquatic biota from management activities that follow Forest Plan direction and best management practices (BMPs). Within the Mitchell Knob and Camp Run Working area, Rough Run is the only wild brook trout (*Salvelinus fontinalis*) stream and coldwater habitat identified by the WVDNR. Regarding Camp Run Reservoir, the EA describes the current fishery use of that water body. It does not assume this is the natural state of the streams in the area; thank you for your comment.

Rip - #3: The Forest Service should analyze and implement additional resource protection measures for riparian areas, seeps, and springs within the project area.

01-#16-24 Logging is allowed around springs and seeps.[...]These areas should be absolutely off-limits to cutting and removal and vehicles; and the no-disturbance zone should be more than just the "immediate" wet area due to hydrological, shade, and drying concerns.[...]there is no analysis or citation to studies to corroborate the assertion that retention of 20% (or whatever basal area

the cutting method retains) of the overstory cover shading these sites is enough to maintain their full functioning and attain their DFC.

01-#16-25 There is a documented occurrence of the roughhead shiner, a sensitive species in this county and watershed.[...]Given the presence of this very rare, sediment-sensitive species, the FS should have considered additional riparian zone/streamside zone protection

01-#16-38 There are a high number of high quality trout streams in the project area. Adequate protection of these and other trout streams in the project area should be a high priority.[...]Wide stream buffers should be considered[...]Headwaters and small streams are particularly sensitive[...]Expanded no cutting or no disturbance zones around stream courses needs to be implemented here.

02-#12-19 Seeps and springs are a component of landscape diversity and are very important for maintaining the population viability and distribution of salamanders, frogs, crayfish, Box Turtles, Turkeys, and other species[...]These areas should be absolutely off- limits to cutting and removal and vehicles; and the no-disturbance zone should be more than just the "immediate" wet area due to hydrological, shade, and drying concerns.[...]The springs and seeps need a protective no-disturbance buffer around them. This buffer should be at least two tree-heights in extent so as to protect their integrity (e.g., protect them from increased temperatures).

Response: We agree that water features and associated biota are unique, fragile, and important. See response to Rip- #1 for management of Riparian Corridors (MA-11). As per direction in the Forest Plan, this corridor includes all defined perennial and intermittent stream channels, natural ponds, lakeshores, wetlands, springs and seeps; and includes human-created reservoirs, wildlife ponds, wetlands, and waterholes connected to or associated with natural water features. In addition, those areas not associated with natural water features, but support riparian flora or fauna, will have a riparian corridor designation.

The Riparian Corridors management prescription was developed to retain, restore and/or enhance the inherent ecological processes and functions of the associated aquatic, riparian, and upland components within the corridor. Width to the corridor is added for a vehicle exclusion zone as slope increases to provide additional protection from ground disturbing activities (See Forest Plan Appendix A). Ours and state species occurrence information do not document the roughhead shiner (*Notropis semperasper*) in the counties or 12-digit HUC watersheds within which the project lies. The project is in the Potomac drainage, while the roughhead shiner is endemic to the upper James River drainage. Even if it were within the project area, management direction has been developed such that there should be no negative effect to downstream aquatic species or habitat.

Roads

Roads - #1: The Forest Service should increase its outreach and communication efforts when considering decommissioning roads.

01-#06-03 I feel they did not do a sufficient job informing the public of the proposal. I believe that at a minimum the forest service should have mimicked local policies in posting notice at the roads and publishing notice of that specific proposal in publication where they'd likely be seen by those who use the roads.

01-#10-03 Also, many sportsmen (hunters and fishermen) utilize roads and logging roads to access the GWNF to pursue their sport. Consideration and consultation with these user groups should be included before final decisions to decommission roads are made.

02-#04-02 I think the Forest Service needs to do a better job posting issue's like this, your sign Notice wasn't even at the entrance where people could clearly see it to respond.

Response: We recognize that the decision to close a Forest Service system road can be controversial and it is not an action that we undertake lightly. The Forest Service conducted five public meetings and invited all user groups and individuals to attend to learn about the North Shenandoah project proposal. In addition to the initial project scoping in September of 2017, there were two formal comment periods to solicit input and feedback on the Draft Environmental Assessment (DEA) (Forest Service, 2019a.) document.

All of the input that we received has been considered in this decision. The roads identified for closure are contributing to accelerated erosion and increased sedimentation that impact water quality and disrupt the continuity of wildlife habitat and travel corridors. Mitigation, in the form of obliteration and rehabilitation of these impacted areas, is one of the primary goals of this project. Although motorized access will be curtailed, non-motorized use of these routes is still welcome so all users can continue to access National Forest System lands.

Roads - #2: The Forest Service should consider the effects to recreation access associated with the closure of roads within the project area.

01-#06-01 I'm writing about the North Shenandoah Mtn Restoration proposal, most specifically about the proposed closures of Kephart Run and Raccoon Run/old 33.[...]specific to those two roads is the fact that they are presently the ONLY two roads still open in Rawley Springs!

01-#13-01 This is in reference to the closing of Caphart Run Rd. Right now this is the only road that is accessible from Second Mt. Road to the WV line on 33W for recreational use. If this road is closed then that will force the public to park along Rt. 33, which is very dangerous.

01-#13-02 If it's not possible to open it all year, what about seasonal, say August - January?

02-#04-01 I'm opposed to the closure of Kephart Run[...]not sure what impact your speaking of for watershed?

02-#11-09 we are curious if the Forest has considered other options for Forest Road 547. Is it possible to mitigate the sediment concerns to the adjacent native trout stream without total closure

Response: The Forest Service recommends the closure of roads based on the need to prevent unacceptable resource damage. Some of the roads on the National Forest have been in use for decades and were never properly designed. On these routes, year-round motorized vehicle use may cause excessive damage to soils and other resources, especially when the road surface is wet.

Closure, combined with decommissioning activities, will reduce erosion and sedimentation issues that have resulted from motorized vehicles. This is a particular concern for Kephart Road as it is located along a trout stream and within a watershed that supplies municipal drinking watershed. Non-motorized recreation access will still be available following decommissioning.

Soils

Soils - #1: The Forest Service should provide for public review the complete analysis for effects to soils to support the finding of no significant impact (FONSI).

01-#14-12 most of the proposed harvest units contain areas with both soils of moderate to severe erosion risk and steep areas with slopes over 35%[...]including but not limited to units 27, 37, 38, 39, 18, 23, 24, and 105.

01-#16-42 the FS needs to disclose whether this project would put a greater (or significantly greater) proportion of the project area watersheds at risk and the impacts of such landslides and slope failures on soils, water quality, aquatic species, wildlife and other resources. Cumulative impacts and risk analysis should be disclosed.

Response: The Natural Resources Conservation Service (NRCS) erosion ratings are based on soil properties calculated from bare soil. Since the Forest Service mandates harvesting techniques that follow best management practices (BMPs), only a very small proportion of units 27, 37, 38, 39, 18, 23, 24, and 105 would experience bare soil, if at all. In areas where bare soils may be present temporarily, like skid roads, erosion control and rehabilitation measures are typically in place promptly and monitored to minimize soil loss. Cumulative impacts to soils, landslides and slope failure and their effects on water resources have been disclosed to our best abilities based on field observations and environmental analysis.

Threatened, Endangered, and Sensitive Species

TES - #1: The Forest Service should provide for public review the complete analysis for effects to threatened, endangered, sensitive, or locally rare (TESLR) plant and animal species and their habitat to support the finding of no significant impact (FONSI).

01-#12-12 The "Occurrence Analysis Results" for *Heuchera alba* (white alumroot) indicate that it is categorized as "Code 4—Species occurs in project area, but outside of activity area."[...]It has been identified within Rough Run watershed by a *Heuchera* expert, and the plant was located at an elevation of approximately 1,700 feet, a lower elevation than its previous range indicated. It may also occur in similar environments in the Kettle Creek watershed. For this reason, thinning activities should be reconsidered.

01-#12-13 it is unclear whether the areas within the Mitchell Knob/ Camp Run Working Area were evaluated for presence of *Heuchera alba*.

01-#14-02 The District asserts in the Draft EA that while project activities may impact individuals of these species, they "are not anticipated to cause loss of species viability on the Forest or cause a trend towards federal listing under the Endangered Species Act." There is no rationale provided for this conclusion about the monarch butterfly or the cupped vertigo.

01-#14-04 the Forest Plan requires that when land disturbing projects are proposed where the Sweet Pinesap is likely to occur, the District must 1. search for the plant, and (2) analyze effects of the proposed actions on it.[...]it is not adequate for the District to simply assume the species is there. What is the plan to protect any populations existing in proposed timber harvest units? How will the District determine if the plant is present in proposed harvest units?

01-#14-05 With regard to all of these sensitive species, it is not clear from the Draft EA whether the District has completed the necessary groundwork or analysis, or developed adequate mitigation measures, to ensure they are maintaining species viability and avoiding a trend towards federal listing[...]The BE and EA should disclose and analyze these issues, as well as identify additional alternatives and mitigation measures for consideration.

01-#16-19 It is unclear how thoroughly the FS surveyed for TESLR species, whether TESLR species could be directly or indirectly harmed by the project, or what steps the FS will take to TESLR species, and the effectiveness of these measures, since we have seen no BE/BA for the project.[...]The FS should conduct thorough surveys and analysis of TESLR species should be conducted. [...]Appropriate surveying techniques should be utilized and these should be utilized at appropriate times of the year and times of the day. [...]Where TESLR species may be harmed by activities, these activities should be avoided in areas with TESLR habitat or known occurrences of TESLR species. Adequate mitigation measures must be established.

Response: Botanical surveys were conducted in each unit in the Mitchell Knob working area, and no TESLR species were noted. The following table lists all TESLR plant species known by West Virginia Department of Natural Resources (WVDNR) or the Forest Service to occur in the Mitchell Knob/Camp

Run working area (table copied from WVDNR comment letter for NSM Project, 2019). If white alumroot (*Heuchra alba*) has been discovered in a new location by an outside expert, please share that information with WVDNR and the Forest Service, so that we may do our best to put protection measures in place. To our knowledge, we have not received any new information on newly discovered TES plant locations from outside the agencies.

Table 2. Plant Occurrences in Mitchell Knob Project Area

Common Name	Scientific Name	Site Name	Global Rank	Sub-national Rank	SWAP Priority
Side-oats Grama	*Bouteloua curtipendula var. curtipendula*	Ant Knob	G5T5	S3	2
Shale Barren Bindweed	*Calystegia spithamaea ssp. purshiana*	Camp Run	G4G5	S3	2
Rough Alumroot	*Heuchera americana var. hispida*	Camp Run	G5	S2	1
Prairie Ragwort	*Packera plattensis*	Camp Run	G5	S1	2
Mountain-pimpernel	*Taenidia montana*	Camp Run	G3	S3	1
Porter's Reedgrass	*Calamagrostis porteri ssp. porteri*	Cow Knob	G4T4	S2	2
Mountain Fetterbush	*Pieris floribunda*	Mitchell Knob	G4	S3	2

Analysis for Sensitive species (e.g. Monarch, Cupped vertigo, Sweet pine-sap) is included in the Biological Evaluation prepared for this project. An electronic copy of the Biological Evaluation, containing rational for a "may impact, not likely to cause a trend towards Federal listing" determination, can be viewed on the project website here: https://www.fs.usda.gov/project/?project=50342. In general however, if the proposed management actions are only affecting a very small portion of a species' global distribution, they are not likely to cause a declining species population trend that would warrant a Federal listing.

Vegetation Management

Veg - #1: The Forest Service should provide for public review a complete analysis for effects from vegetation management activities such as timber harvest, prescribed burning, and their connected actions such as temporary road and fire line construction, to support the finding of no significant impact (FONSI).

01-#11-03 With regard to leave trees in harvest units, we request the District consider maximizing the amount that is left in clumps.

01-#12-04 all studies should be cited and also be made available in PDF format for online review. For example: · Page 12: Numerous studies indicate that a considerable portion of the GWNF was more "open" or park like prior to the 19th century as described above". Please provide citations for this statement.

01-#14-13 "sustained slopes" is not defined. The Forest Plan requires the use of advanced harvesting methods such as cable on "sustained slopes" of 35% or greater.[...]how much steep land constitutes a "sustained slope" versus a "small inclusion" of a steep area.[...]We recommend language similar to that used in the Lower Cowpasture and Nettle Patch projects: "All bladed skid trails/roads and temporary roads required for ground based logging on slopes 35% or greater will be less than approximately 300 feet in length."

01-#15-11 I still cannot understand the "ecological departure" rationale. Where do these numbers and percentages come from and how derived?

01-#16-04 The FS should disclose the timetable for closure accompanied by restoration of all[...]temporary roads. The FS should disclose the impacts of soils, watershed, aquatic species, recreation, increased access (impacting wildlife) and other environmental impacts from temporary roads, road reconstruction and bulldozed firelines.[...]Please examine and disclose all effects of temporary roads, including impacts on hydrology, springs and seeps, streams, wildlife, geology, caves, motorized use, non-motorized and primitive backcountry users, invasive and non-native plants, native plants, cultural resources, and other key resources. Please disclose how long these roads will impact resources of concern.

02-#05-04 MA-13 equals about 65% of the project area. It would be useful in knowing what the accurate percentage or acreage of this MA is available for timber harvest due to within site limiting factors.

02-#07-01 abundant literature in peer-reviewed scientific journals states that structural complexity of mature temperate, deciduous is a defining characteristic of the highest net primary productivity of the stand including habitats for biodiversity and carbon sequestration and storage.[...]why does this project aim at simplifying the structural complexity of long-lived forest tree species just beginning to develop it barely a century after most of the area was deforested? [...]in virtually every activity outlined in the draft EA, the Forest Service proposes to simplify forest structure.

02-#07-07 Monitoring for results of logging and burns is critical.

02-#10-02 should this project attempt to simplify the structural complexity of long-lived but not yet fully developed forest tree species only a century after most of the area was deforested? If the FS believes it should, then the reasons should be clearly and publicly stated along with a clear plan for monitoring results and remediation if/when clearly necessary.

02-#10-05 It is also not clear that other proposed activities (such as prescribed burns and timber harvesting) will not have unintended consequences such as habitat destruction of these or other animal or plant species or a negative re-balancing from the new species components that result. The FS must explicitly anticipate these effects and establish mitigation and restoration

efforts that will precede and follow their occurrences, as well as plan for and budget ongoing assessment and management of any effects.

02-#11-04 Are there ways to integrate timber and prescribed fire to be more effective at targeting open woodlands?

02-#12-09 I still do not understand the "ecological departure" rationale. Where do these numbers and percentages come from and how derived?

Response: The Forest Service completed a thorough analysis of the anticipated effects of the treatments on vegetation and other affected resources. Please refer to the Silviculture and Fire sections in Chapter 3 of the Environmental Assessment (EA) (Forest Service, 2020) and also the Silviculture and Fire reports (Forest Service, 2019b. & 2019c.) in the project record, which cover effects relating to vegetation from logging, prescribed burning and other silvicultural operations. The evaluation examined effects (including a breakdown by watershed) to the overall age class distribution, early successional habitat (ESH), the ecologic departure analysis looking at stand structure attributes, shortleaf pine stand conditions, and old growth.

Unfortunately, forest ages and stand structure are very consistent across the project area and one of the objectives of the project is to create diversity. Ecological Departure is defined as the difference between what the existing conditions are and what is thought to have existed (historic conditions) when the forest was affected by a frequent fire regime. The desired stand structure as discussed in the effects section is approximated by the desired conditions in the 2014 *Revised Land and Resource Management Plan* for the George Washington National Forest (referred to as the Forest Plan) (Forest Service, 2014a). Desired conditions are described for each Management Prescription Area in Chapter 4 of the Forest Plan.

Sustained slopes greater than 35 percent will be avoided, although some logging may occur around the perimeter with use of hand felling and cabling trees from steeper areas to areas with less than a 35 percent slope. Very little construction of skid trails is expected on land with slopes over 35 percent. Of land that is suitable for harvesting in Management Prescription Area 13 – Mosaics of Habitat (MA13), it is difficult to calculate the percentage which is inoperable due to slope and other geological conditions. This requires examining sites in the field to verify operability. While this has been done on many of the units proposed and as a result portions have been dropped, it is difficult to predict the total amount of operable ground with any accuracy. Mapping which shows slopes over 35 percent, is not enough to make decisions regarding operability.

The Roads and Hydrology sections also refer to effects on soils and water resources associated with proposed treatments, including road building and construction of control lines for burning.

Veg - #2: The Forest Service should employ an adaptive management approach when implementing the North Shenandoah project.

01-#14-14 The EA should describe and commit to a fleshed out monitoring plan that describes quantifiable objectives for project activities, a clear plan for monitoring to determine whether and to what extent those objectives were met, and adjustments that may be made if results or

effects are not as expected. We also recommend that the EA explicitly provide for an adaptive management approach to the project (again, due to the scale and timeframe for implementing this project).

02-#05-02 Repeat entry to set back a stand(s) many times is diminishing the benefits these stands provide in full life cycle management of all wildlife. Evaluation of the regeneration and herbaceous response should determine the next treatment or progression to pole and beyond.

02-#05-03 it is essential that burn blocks, designated open woodland stands and young forest stand designations not be conditions designated in perpetuity.[...]All actions need to be progressing in filling the void of the 50-80 yr class to progress in both size and characteristics of older growth stands as these stands begin to decline from the climax forest structure.

02-#05-05 The complex structure referred to within the Cove Forest Type should not deter management efforts.[...]in terms of maintaining the structural integrity of this important forest type non-commercial felling should be an option.

Response: The Forest Service has proposed some adaptive elements for this project. An adaptive approach would allow for alterations or changes to the prescription in certain units due to changing of conditions (such as a natural disturbance events), or after more information becomes available during layout. Additional information could result in making a determination that the regeneration sources are not adequate and that a thinning would be more appropriate as an example.

Some open stand conditions created by thinning will be maintained by periodic prescribed fire to perpetuate the benefits that stand structure provides. In all cases, early successional habitat created will be allowed to develop and grow, creating new ages classes of forests.

Veg - #3: The Forest Service should disclose what herbicides and biocides would be necessitated by this project and should notify the public prior to their use within the project area.

01-#16-14 The FS should have also disclosed what herbicides and biocides would be necessitated by this project.[...]This should also include the public health impacts of Round-up and similar herbicides

01-#20-01 Our well water comes from the Feltz Ridge Working Area; therefore I would request that Imazapic not be used. If it must be used, I would like to be notified in advance.

01-#21-03 I am very concerned with any chemicals that may affect our excellent well water quality and the water quality of those downstream.[...]Our well water comes from the Feltz Ridge Working Area; therefore I would request that Imazapic not be used. If it must be used, I would like to be notified in advance.

Response: The Forest Service uses a variety of herbicides to control non-native invasive plants and in certain silvicultural treatments. The agency uses glyphosate, glyphosate (aquatic formulation), imazapyr, imazapic, triclopyr 3, triclopyr 4 (oil soluble) and sulfo-meturon on non-native plants. These chemicals

are mixed with carriers such as water or oils during application. The exact application strategy depends on the site and the size and amount of the target plants. Application modes include foliar applications, stem injections and basal bark treatments. Imazapic is used in very specialized situations and is sometimes used as a pre-emergent in areas where it is challenging to control non-native invasive species (NNIS). Currently there are no plans to use the chemical in the Feltz Ridge working area.

In silvicultural operations such as those to release oak saplings or shortleaf pine seedlings from competition, chemicals such as imazapyr, sulfo-meturon and glyphosate are employed in foliar or injection treatments.

Veg - #4: The Forest Service should provide for public review a complete analysis of the threats posed by non-native invasive species (NNIS) within the project area. The Forest Service should also commit to monitoring NNIS and implementing effective control measures against them.

01-#09-03 It is imperative that any activities, be it timber cutting or burning, be followed up by monitoring for and control of invasive plants.

01-#11-09 Another issue related to active management activities is the resulting increase and spread of nonnative invasive species (NNIS) following ground disturbance, fire, and other project activities that will increase light reaching the forest floor. We appreciate the agency's discussion of NNIS in the Draft EA and are curious about how the District concluded that proposed ground disturbance and fire - including in areas with existing infestations of NNIS - would lead to a decrease of NNIS in the project area.

01-#14-10 neither the Monitoring section nor the Design Criteria section appears to commit clearly to treating NNIP following assessment/monitoring.

01-#16-10 The FS should analyze the potential for this logging project to open up habitat and create conditions for the introduction and spread of invasive species.[...]Invasives, and vectors for the spread and introduction of invasives, must be fully considered. Mitigation measures must be established to reduce invasives.

01-#16-12 The FS has not demonstrated that the mitigation measures effectively eliminate the causes of noxious weed spread. logging, roadbuilding, and skid trail use and heavy vehicle traffic spread existing weeds, and probably introduce new species of weeds The Forest Service should consider all reasonable measures that could reduce the potential spread of noxious weeds.

01-#16-13 Without first significantly reducing the type of soil disturbing activities that facilitate noxious weed invasion, the proposed treatment effects may be negated, indeed, overwhelmed by the spread of weeds caused by more of the same road building and logging.[...]The FS should consider preventive measures, including foregoing or greatly reducing the footprint of this project, in order to better address the problem of invasive plants.[...]The NEPA document should include measures to limit future ground disturbing and weed spreading activities.[...]The NEPA document should examine and address the most prevalent ways that soil disturbances are created which lead to weed invasions.

02-#11-07 We would also ask to strengthen the NNIS program with assessment and management of NNIS before any treatments take place.

02-#11-08 One example discussed in earlier meetings was the mile-a-minute infestation in the Slate Lick Working Area.[...]We encourage the Forest to carefully consider how to control this particular invasive species before any planned disturbance occurs.

02-#12-13 How, where, and to what extent does the FS intend to protect the integrity of rare native plant communities? How, where, and to what extent does the FS intend to ensure that nonnative invasive plants are not a demonstrable threat to the integrity of major natural plant communities?[...]The planners must fully and fairly address, evaluate, and disclose these issues (such as, e.g., cumulative impacts, and the sustained yield of areas not impacted) involving invasive species.

Response: The National Forest lands, like neighboring private lands, are increasing susceptible to non-native invasive species (NNIS). The Forest Service is committed to controlling NNIS, including reconnaissance, integrated treatments (chemical, mechanical, cultural and combinations) and monitoring to judge the effectiveness of treatments. While complete eradication of NNIS populations is not feasible in many cases, the agency is committed to not allowing these plants to curtail productivity or threaten important habitats on public lands or displace native species in large numbers. Please refer to the silvicultural report in the project record for a more complete discussion on the effects on NNIS from project activities. Please refer to the Silviculture report in the project record for additional discussion NNIS management and effects.

Active management, including the systematic reconnaissance of treatment units and surrounding areas, will allow for identification and control measures on populations that would have likely gone undetected. Harvesting activities will likely allow the agency leverage funding opportunities for widespread control measures through vehicles such as the Knutsen-Vandenburg Act (KV) funds and use of stewardship contracting. Robust monitoring will occur and will be scheduled in the Forest Service's Forest Activity Tracking System (FACTS) database to insure follow-up.

Veg - #5: The Forest Service should explain the need for prescribed fire treatments within the project area.

01-#15-15 It is not clear that the site-specific flora and fauna populations and natural communities found in all the expansive areas proposed for burning are in need of artificial fires.[...]Are other management methods to "control succession" or alter vegetation more appropriate?

01-#15-16 If Yellow Pine communities are of concern, then why aren't prescribed burns restricted to or concentrated in these sites? Instead, the FS is burning riparian areas and vast tracts of mesic or dry-mesic hardwoods.[...]the problem is that the burning is NOT "targeted at restoring the yellow pine community". The FS must do this instead of burning moister deciduous habitat used by biota such as woodland salamanders and Wood Turtles.[...]Prescribed fires are currently NOT confined or limited to fire dependent ecosystems on the GWNF. The FS commonly sets fires in mesic hardwood sites.

02-#07-06 Why is prescribed burning presented as "natural" and "restorative" when this approach is contradicted by historical data? And where in the plans is Brose's stated need for at least 40 years between burns to allow oak saplings to grow thick enough bark to withstand low level fires accommodated?

02-#10-04 If the FS believes the "leftovers" from timber harvesting would not pose a threat because of our relatively humid climate, the question arises as to why naturally occurring forest floor debris that is naturally occurring would pose such a threat. The draft EA does not adequately explain the FS's approach to prescribed burning, especially in terms of this seeming contradiction. Nor is the draft clear as to how the FS will determine which areas "need" prescribed burning or timber harvesting. Prior to undertaking either, in any part of the coverage acreage, the FS needs to fully understand, quantify, and publicly provide the anticipated impacts on the overall forest structure and balance of these activities prior to undertaking them.

02-#11-03 we would like to learn more about what Plan goals are you attempting to achieve using prescribed fire, for example, are you trying to achieve more "early" or "open"?

Response: Most of the forests in the project area developed within a fire regime that included periodic wild fires. This certainly shaped the species composition that we see today. Since then (mid 1930s) the occurrence of fire has been much diminished on the forest and has affected the forest in many ways. The lack of fire has profoundly affected the structure and species composition of forest stands. Prescribed burning will return fire to areas which are naturally adapted to periodic fire. Certain species of plants and trees thrive when there is periodic fire such as yellow pine (*Pinus spp*.) species, oak (*Quercus spp*.), and certain grasses. In order to effectively restore species and ecological processes in these forests periodic fire is necessary. Some of the effects of prescribed fire can be mimicked by mechanical and herbicide treatments but in many cases not as effectively or economically.

Cove forests and riparian areas experienced periodic wildfire as did other stand types. However, when prescribed fire flames reach these areas the intensity is very low with flame lengths generally less than a foot and in many cases the fire goes out due to the moist conditions and high humidity.

Periodic respites from prescribed fire is recommended in certain cases to allow new age classes of oak saplings the chance to fully establish and become resilient to periodic fire. This would be done on a case by case basis and would occur as need to ensure new age classes of oaks are established.

Veg - #6: The Forest Service should commit to avoiding timber harvest in all areas that meet the criteria for existing old growth.

01-#14-08 it is critical that the District commit to avoiding timber harvest in all areas that meet the criteria for existing old growth,

01-#16-41 it appears that there is a potential for the project to impact large-, medium- and small-sized old growth tracts in these working groups.[...]The FS should disclose the impacts on old growth and disclose whether the treatments could preclude or delay the attainment of old growth

status. The DEA provides no information indicating that this was done.[...]the FS needs to consider the degree to which large- and medium-size old growth tracts could be dissected or reduced (or if this project would delay the attainment of large- or medium-size old growth tracts in the future. Cumulative impacts be disclosed.

01-#18-02 when you are thinning the existing trees, we would still like to see some of the old growth white oak trees left.

01-#21-05 I would ask that as many of the old growth stands of maple and oak trees on the Leading Ridge Working Area be allowed to remain.

Response: Old growth surveys have been conducted for all proposed timber harvesting units. Based on the survey results, changes were made to the proposed action that included the reduction in size of some harvest units and the elimination from harvest of others. As a result, there are no proposed actions which call for mechanical harvesting operations in areas which meet the four criteria for potential old growth forest stands. These areas have been removed from treatment units and any old growth discovered at any point during implementation will be delineated and avoided. The Forest Plan only allows harvesting in potential old growth areas if a complete analysis is done showing the anticipated effects to the old growth resource.

The Forest Plan does not direct that any younger forest stands adjacent to identified old growth be managed in a way that would allow for the expansion of areas classified as old growth. In many cases some of the oldest trees are retained because they are good producers of mast and they also provide important habitat to wildlife.

Veg - #7: The Forest Service should commit to protection measures for special designation areas and unique habitats such as Little Laurel Run Resource Natural Area (RNA) and rocky outcrops.

01-#16-40 Although the FS would not allow project activities to occur within Little Laurel Run RNA (DEA 93), the FS does not prescribe measures that would prevent direct impacts to the RNA or species and habitats found within it and the FS does not prescribe measures that would prevent accidental spillover impacts (direct impacts) to the RNA or species and habitats found within it.

02-#12-18 "Harvesting" activities must be avoided in the rocky areas. Through avoidance or mitigation measures the FS must protect the rock outcrops, rocky hollows, and rocky slopes in project areas.[...]Without proper buffer zones (such as extending out at least two tree heights or approximately 280-300 feet) the habitat conditions and populations within the outcrops would not be protected. The mitigation and alternatives must meaningfully and explicitly avoid impacts to these areas and protect the Forest's diversity.

Response: Special designation areas within the analysis area such as the Little Laurel Run Resource Natural Area (RNA) do not include timber harvesting activities and would not be impacted. Rocky outcrops within timber harvest units will be delineated during timber sale layout. Small inclusions would

be surrounded by a buffer, with no harvesting to occur within them. Larger outcrops would be removed completely from the sale unit. These areas are usually unfavorable for timber harvesting activities due to their nature.

Visuals

Visuals - #1: The Forest Service should give greater consideration to the effects to visuals and scenic resources.

01-#12-14 The Draft Environmental Assessment only accounts for aesthetics associated with level 1 and level 2 travel ways.[...]It does not appear that any consideration of aesthetic value is given for viewpoints for smaller state roads or private lands adjacent to areas selected for thinning activities. [...]Please provide details about what standards will be used (if any) to protect the aesthetic value when near any roadway or private property.

Response: All of the county and state travelways within or near the project area with potential views to proposed treatments are included in the assessment. The 2014 *Revised Land and Resource Management Plan* for the George Washington National Forest (referred to as the Forest Plan) (Forest Service, 2014a), provides a scenery treatment guide in Chapter 3 (Table 3-3) and Forestwide Standards for scenery in Chapter 4 (FW-181 to FW-198). During project development these are used as design criteria to protect the aesthetic values of National Forest Service lands.

Water Quality

Water - #1: The Forest Service should provide for public review a complete analysis for effects to water quality and native species to support the finding of no significant impact (FONSI).

01-#14-11 We are interested to learn more about the TMDL for the North Fork of the Shenandoah River[...]Has the District reviewed the TMDL?

02-#08-02 The FS has acknowledged that unplanned trails and camping areas in the Slate Lick area are significant threats to water quality and native species. The DEA states that a full review of recreation was not conducted alongside the other management activities[...]There is no question that impacted caused by those management activities discussed in the DEA may combine with those caused by the recreational facilities and activities the FS has chosen to exclude from this review. The National Environmental Policy Act requires that cumulative impacts be analyzed and we believe the FS has failed to meet this requirement in the DEA.

02-#12-20 The past and current state of biotic populations and water quality of perennial streams, and intermittent and ephemeral tributaries, even if a "fishery" may be absent, must be disclosed. Total amounts of sediment estimated to enter these streams from the proposed cutting or

roading must be meaningfully analysed. Precisely what monitoring information has been gathered here on the effects to intermittent stream populations and water quality from previous cutting? Exceeding the threshhold levels for certain site-specific intermittent tributary "resources" may be at risk as a result of impacts from the proposed logging and roading.

Response: This project was designed, in part, to reduce impacts from recreation use to water quality, riparian-dependent species, native trout, and other aquatic resources along Slate Lick Run and other stream locations. It would create a buffer along the stream where heavy camping and horse use are currently impacting the stream. These actions could include: native plantings, placing boulders or other barriers to reduce unauthorized use in riparian corridors (e.g. vehicles, campsites, dumps, etc.), and road decommissioning that is included under the transportation discussion.

These actions were identified because of their proximity to water features and riparian areas and were included in the aquatic cumulative effects analysis. A complete mapping and analysis of all recreation, legal and illegal, within the project area is outside the scope of this analysis. The past and current state of biotic populations and water quality of perennial streams, and intermittent and ephemeral tributaries, is of great importance to the Forest Service. As detailed in the EA (Forest Service, 2020) (see discussion and Tables 25 and 26), long-term extensive monitoring has been conducted across the Forest and in this project area as per Forest Plan desired future conditions and monitoring direction. It is not possible with current capacity to include a benthic or water quality monitoring site on every stream within the project area, nor is it necessary. Analysis of monitoring data has shown no discernable negative effect on stream habitat and aquatic biota from management activities that follow Forest Plan direction and best management practices (BMPs).

Water quality monitoring, thresholds, and impairment ratings are under the jurisdiction of the Virginia Department of Environmental Quality (VDEQ). The North Fork of the Shenandoah River TMDL report was reviewed and is available for review in the project record. More information can be found on line at https://www.deq.virginia.gov/ or https://dep.wv.gov/ websites

Wildlife

Wildlife - #1: The Forest Service should provide for public review the Biological Evaluation / Biological Assessment (BE/BA) analysis for the North Shenandoah Mountain Restoration and Management Project.

01-#12-05 A copy of the BE/BA can be found in the project planning file at the North River Ranger District Office in Harrisonburg, Virginia. This document should be made available online in PDF format and online to allow for review.

01-#14-01 if the District has completed the BE (even in Draft form), it would have been useful to make it publicly available on the project website during the comment period.

Response: The Biological Evaluation (BE) (Forest Service, 2019d.) and Biological Assessment (BA) (Forest Service, 2019e.) for the project were completed as part of the Draft Environmental Analysis (Forest Service, 2019a.) and are part of the project file. These documents are not available for release until consultation with US Fish and Wildlife Service (USFWS) is completed. These documents are available for review in the Official Project Record located at the North River Ranger District office or electronically on the project website here: https://www.fs.usda.gov/project/?project=50342.

Wildlife - #2: The Forest Service should provide for public review the complete analysis for effects to Indiana Bat, Northern long-eared bat, and any other threatened or endangered bat species and their habitat to support the finding of no significant impact (FONSI).

01-#16-26 It is unclear how thoroughly the FS surveyed for TESLR bats, whether these species could be directly or indirectly harmed by the project, or what steps the FS will take to these species, and the effectiveness of these measures, since we have seen no BE/BA for the project.[...]The agency should consult with the USFWS on this specific project. The necessary biological opinion must be obtained. The proper Biological Assessment must be performed.[...]The proposal does not accomplish the goals of the IBRS or ESA or NFMA[...]The clear potential for adversely affecting a threatened or endangered species is present.[...]there is no record if surveys have been conducted in and around the GWNF to identify new hibernacula there.[...]If the FS does not perform the needed surveys and inventories of the area and its habitat (the proper site- specific good faith "hard look" by qualified personnel using valid methods) necessary for clearly establishing the status of the Bat here, it is clear the agency would not be placing the requisite highest priority on the Indiana Bat and other T&E bats and their habitat.

01-#16-27 The figures and narrative in the EA establish that the FS decision intends to remove and/or cut down a large amount of the potential Indiana Bat and other T&E bats' habitat at these cutting sites. The amount of disturbance proposed is not consistent with a FONSI or "no adverse effects to" Indiana Bats and other T&E bats.[...]Efficacy of proposed mitigation measures for the Bat must be explained, and they must completely compensate for potential adverse effects. [...]The mitigation for the Bats offered by the agency does not accomplish compliance with the NFMA.

01-#16-30 there is no viability analysis for the Indiana Bat and other T&E bats for this specific proposal or for the GWNF in the administrative record.[...]Hard data on their population status in this project area has not been gathered, nor has a rigorous viability analysis been performed.[...]This information, required for a well-informed well-reasoned decision, must be gathered here.

01-#16-31 The FS must perform the requisite surveys using advanced methods to determine in the eastern small footed bat exists in the area.[...]The eastern small footed bat and other species (and their habitats) are not adequately considered or protected.

02-#09-04 There is also potential for the Northern Long-eared bat (Myotis septentrionalis, G1G2/S1S3/LT/LT) to occur within the project area.[...]Due to the decline in population numbers, the Northern Long-eared bat has been federally and state listed as "threatened" by

the United States Fish and Wildlife Service (USFWS) and the Virginia Department of Game and Inland Fisheries (VDGIF).

Response: The Biological Assessment (BA) (Forest Service, 2019e.) prepared for this project contains the analysis for all Federally Listed Threatened and Endangered (T&E) bat species known to occur in the project area, and the Biological Evaluation (BE) (Forest Service, 2019d.) contains the analysis for all Forest Service Southern Region (R8) Regional Forester's Sensitive species (including eastern small-footed bat (*Myotis leibii*)). The Forest Service does not conduct specific night-time bat acoustic surveys or winter hibernacula surveys. Bat surveys are planned and completed by qualified State agency (e.g. Virginia Department of Game and Inland Fisheries (VDGIF) or West Virginia Department of Natural Resources (WVDNR)) and U.S. Fish and Wildlife Service (USFWS) personnel, and that monitoring data is made available to the Forest Service for analysis purposes through agreements.

Known bat roosting sites and hibernacula sites are reviewed as part of the biological analysis, and there are no caves with winter microclimate habitat conditions suitable for bat hibernaculum in the project area nor known summer/fall roost trees documented within the project area by USFWS or state agencies for Indiana bat (*Myotis sodalist*) or northern long-eared bat (*Myotis septentrionalis*). Bat species are assumed as present in the BE analysis if habitat conditions would support that species (e.g. eastern small-footed bat), making species-specific surveys unnecessary. The Forest Service has worked closely with the Gloucester office of the USFWS and both VDGIF and WVDNR agency personnel throughout this project on potential bat habitat, occurrence records, and potential effects.

This project-level analysis follows the direction in the Final Environmental Impact Statement for the Forest Plan (FEIS) (Forest Service, 2014b.) and is in compliance with applicable Forest Plan Indiana Bat Standards FW-47 to FW-62. This analysis includes, and is in addition to, the entire Indiana bat effects analysis (pages 3-152 through 3-164) documented in the Forest Plan FEIS. Findings of that analysis concluded that individual bats might be killed or harmed by such activities as associated with this project (e.g. timber removal, prescribed burning). The USFWS has determined that such take, within authorized levels, would be incidental take, and would not result as jeopardy to the Indiana bat.

In the June 12, 2013 US Fish and Wildlife Service's Biological Opinion (as modified by letters of March 5, 2014 and April 21, 2014) concerning the Indiana bat on the Forest the following conclusion was reached, "After reviewing the current status of the Indiana bat, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the FWS's biological opinion that the 2013 Revised GWLRMP, as proposed, is not likely to jeopardize the continued existence of the Indiana bat and is not likely to destroy or adversely modify designated critical habitat."

Additionally, the USFWS completed a Biological Opinion (BO) on August 5, 2015 for the continued implementation of Forest Plans in the Southern Region (R8), including the George Washington NF, related to effects on the northern long-eared bat (NLEB). The BO relied on continued implementation of existing Forest Plans and excepted activities as described in the April 2nd listing and associated interim 4(d) rule. On January 14, 2016 the FWS published the NLEB final 4(d) rule and it went into effect February 16, 2016. On February 11, 2016 the Southern Region of the Forest Service informed the FWS that the Forest Service will be implementing the NLEB final 4(d) rule using the voluntary process outlined in the January 5, 2016 Biological Opinion associated with the final 4(d) rule in lieu of the August

2015 BO specific to Forest Service activities. Tree removal under certain conditions is an activity that is excepted from incidental take prohibitions in the final 4(d) rule. None of the tree removals proposed for this project is within 0.25 mile of a known hibernacula or within 150 feet of a known, occupied maternity roost tree and is therefore excepted pursuant to the final 4(d) rule.

Regarding T&E bat species, the USFWS responded the North Shenandoah Mountain project consultation package sent in for official review in a letter dated, January 13th, 2020 as follows:

"The proposed action includes 8,069 acres of incidental take associated with the following activities: harvest timber, conduct prescribed burning, and complete other ancillary resource/habitat improvement projects within the next one to five years. A detailed description is provided in the Biological Assessment received on September 11, 2019. You concluded the federally listed endangered Indiana bat (Myotis sodalis) may be adversely affected. The FWS's biological opinion (as modified by letters of March 5, 2014 and April 21, 2014) authorizes incidental take of 23,513 acres annually of potential Indiana bat habitat. For fiscal year 2020, this is the second project the George Washington National Forest has consulted with FWS on disturbance of potential Indiana bat habitat. The 8,069 acres of vegetation disturbance proposed for this project does not exceed the take coverage from the 2013 Biological Opinion, therefore, these activities are covered.

On February 2, 2016 the Forest Service notified the FWS that you will be implementing the programmatic biological opinion for the northern-long eared bat (Myotis septentrionalis) final 4(d) rule. We concur with your may adversely affect determination for the federally listed threatened northern-long eared bat, but that any resulting incidental take of the northern-long eared bat is not prohibited by the final 4(d) rule."

<u>Wildlife - #3</u>: The Forest Service should provide for public review the complete analysis for effects to Rusty Patch Bumble Bee and any other rare bee species and their habitat to support the finding of no significant impact (FONSI).

01-#09-02 Given the biodiversity of this region, we were not surprised that surveys found rare bees in the project area. It will be important to avoid any impact to these populations as the project is implemented. We would also like to stress the importance of making sure the Rusty Patch Bumble Bee, found just outside the project area, is not harmed by project activities.

01-#11-05 Before finalizing any management actions in these areas, we ask that the agency identify all of the bees that were collected, survey appropriate proposed units for their presence, and analyze all potential impacts of the proposed management on the bees.

01-#14-06 The Draft EA mentions that 3 species of rare bees were recently discovered within the project area.[...]Osmia illinoensis[...]Osmia felti[...]Mellita Eickworti[...]The Draft EA does not contain any discussion of these bees, what is known of their nesting and foraging habits, or their habitat. Nor does it contain any analysis of potential impacts of the proposed actions - from timber harvest to prescribed fire - on them. [...]The Draft EA fails to include and analyze relevant information about the bees.[...]it is not clear why the Draft EA does not address threats to the bee from cutting vegetation in nearby forest and instead focuses on vegetation within the corridor.[...]because the Forest Service did not analyze these species during Plan revision, it must do so now.

02-#09-03 DCR zoologists also conducted surveys for the Rusty patched bumble bee (Bombus affinis, G1/S1/LE/NL) and the Yellow-banded bumble bee (Bombus terricola, G3G4/SC/NL/NL) in the greater area of the project footprint.[...]DCR agrees with the EA information provided on page 106 under "Effects to Locally Rare Species" that known rare bee populations are not likely to be affected adversely by the proposed management practices.

Response: All species listed as Threatened, Endangered, or R8 Sensitive (TES) were analyzed in the Biological Evaluation (Forest Service, 2019d.) or Biological Assessment (Forest Service, 2019e.) prepared for this project. Rusty patched bumble bee (*Bombus affinis*) (RPBB) is the only bee species on the TES lists, and was listed as Endangered under the Endangered Species Act in January of 2017. Other rare bees discovered during USFS-contracted surveys of the project area were discussed in the EA, but not analyzed in detail, according to policy (they are not listed as TES). Due to their rarity, there is very limited information available on life cycle, ecology, and habitat requirements for these species for analysis purposes.

Until the discovery of RPBB by USFWS-funded surveys in August 2019, the RPBB was not known to occur in the North Shenandoah project area. The Forest Service initially accessed the USFWS on-line Information for Planning and Consultation (IPaC) system in 2017 during desktop analysis to determine Federally Listed species occurring within the North Shenandoah project area, and again in March of 2019, to begin the informal consultation process for the North Shenandoah project. At the time, RPBB had not been discovered within Rockingham County yet, and thus these records were not integrated into the IPaC system, and RPBB do not appear on the original Official Species List attached to the Biological Assessment in Appendix C.

The Draft Biological Assessment completed in May 2019 to inform the Draft EA (Forest Service, 2019a.) did not analyze effects to RPBB, because the project was “outside of the current range” for RPBB based on evidence at that time. Once RPBB were discovered in Rockingham County, within the project area, the Draft Biological Assessment was updated to include detailed analysis of potential effects to RPBB from proposed actions. Because of the lag-time in IPaC updates, the concurrent development of the USFWS management guidelines for RPBB, and the time needed for modeling High Potential and Low Potential Zones for RPBB (across its entire range) by the Mid-West USFWS Field Office, the project consultation process for this species was impacted. USFS is working closely with the Virginia Department of Conservation and Recreation-Division of Natural Heritage (DCR) and USFWS staff regarding RPBB. An electronic copy of the updated Biological Assessment with detailed analysis can be viewed on the project website here: https://www.fs.usda.gov/project/?project=50342.

Wildlife - #4: The Forest Service should provide for public review the complete analysis for effects to Cow Knob salamander, Shenandoah Mountain salamander, and their habitat to support the finding of no significant impact (FONSI).

01-#11-06 We also ask the District to consider whether additional analysis and mitigation measures are necessary to ensure the project has no significant impacts on the Shenandoah Mountain salamander[...]It is not clear from the Draft EA that these salamanders are adequately provided for currently, particularly in proposed units outside management area 8E7.

01-#14-03 In the Draft EA, the District asserts that complying with management standards for the cowknob salamander in the Shenandoah Mountain Crest management area (MA 8E7), as well as Forest Plan standards for sensitive species and project-specific design elements, will limit negative impacts.[...]none of the activities that threaten the salamander - including proposed timber harvest, prescribed burning, and road construction - will occur in MA 8E7 areas. So those standards will not protect Shenandoah Mountain salamanders outside of that area. And the Draft EA discloses that Shenandoah Mountain salamanders were found in management areas other than MA 8E7.[...]it is not clear in the Draft EA whether the District has complied with Plan provisions related to the Shenandoah Mountain salamander. [...]project design criteria in the Draft EA simply provides that a biologist will be consulted "if the salamander is found during implementation." Who does the District expect to find these salamanders during implementation?[...]it is the agency's job to identify and address these threats before logging begins. [...]the Clinch District [...]committed to a protocol to identify and protect green salamanders[...]The District should consider developing an analogous protocol that is appropriate for the Shenandoah Mountain salamander.

01-#16-17 it is unclear how thoroughly the FS surveyed for Cow Knob salamanders and other salamanders, whether salamanders could be directly or indirectly harmed by the project, or what steps the FS will take to protect salamanders, and the effectiveness of these measures, since we have seen no BE/BA for the project.[...]The Forest Service should sufficiently examine and consider the potential impacts upon salamanders. [...]If this PA contains tiger salamander habitat or other MIS or TESLR salamander habitat, the FS should examine impacts in full.[...]It is apparent that the proposed operations have the potential to significantly harm the habitat of and thereby the distribution and viability of some salamander species. This issue should be fully and fairly considered by the agency here.

02-#12-21 I am concerned about the harmful impacts the project would have to the distribution and viability of salamander populations. Of particular concern are the Shenandoah Mountain Salamander (Plethodon virginia) and the Cow Knob Salamander (P. punctatus).[...]Implementation of this proposal as currently configured would not be consistent with the 1994 Conservation Assessment for the Cow Knob Salamander [...]A decision would violate the LRMP, NEPA, NFMA, MUSYA, and APA if the FS did not properly consider and analyze this species, did not gather sufficient monitoring and survey information, did not properly provide for habitat and interactions, did not ensure population distribution and viability and sustained yield and productivity, did not protect the Forest's diversity, did not comply with a Plan Standard, and disregarded available science.[...]Thorough and complete population surveys and inventories of this species were not performed for or part of the GWNF FEIS, nor is such information about this project area in the GWNF Monitoring reports. There are technically reliable and feasible methods of collecting this information. The data are available, the Forest Service has simply decided not to collect it. Current population inventory and viability analysis are not in the Forest Monitoring Report.

Response: Potential impacts to R8 Sensitive species, including Cow Knob salamander (*Plethodon punctatus*) (CKS) and Shenandoah Mountain salamander (*Plethodon virginia*) (SMS) were analyzed

in detail in the Biological Evaluation (Forest Service, 2019d.) prepared for this project. Dr. William Flint, a salamander expert from James Madison University, conducted salamander surveys for the North Shenandoah project during 2017-2018, and has consulted at length with Forest Service biologists regarding the project and potential impacts to both CKS and SMS. Complete population surveys and inventories for all salamander species within the 100,000-acre project boundary is not practicable at the project level, due to time-scale, funding, and staff limitations, nor is it required by R8 Sensitive Species policy.

The project follows all Forest Plan direction for CKS, the CKS Conservation Agreement with USFWS (1994), and guidance on analysis for R8 Sensitive species. An electronic copy of the Biological Evaluation, containing analyses for CKS and SMS, can be viewed on the project website here: https://www.fs.usda.gov/project/?project=50342.

Wildlife - #5: The Forest Service should provide for public review the complete analysis for effects to wood turtles and their habitat. The Forest Service should also implement additional restriction to protect the wood turtle within the project treatment areas.

01-#15-01 There is a difference between "grassy, shrubby, and herbaceous understories"[...]Wood Turtles, due to their foraging preferences, would benefit far more from herbaceous plants than shrubby ones.

01-#15-02 Burning Wood Turtle sites/habitat also may foreseeably result in significant damage or degradation or death to Turtle habitat, populations, and/or individuals.

01-#15-03 The Wood Turtle is a "Sensitive" species and "Endangered" under the CITES framework. The project-specific Design Elements created for this project, in addition to Forest- wide Standards, DO NOT address the potential direct mortality to Turtles, nor do they prevent the destruction or degradation of Turtle foraging habitat.

01-#15-04 The populations of Wood Turtles that the agency is proposing to impact and harm with this project are the southern-most populations of the species entire GLOBAL range[...]There is no evidence that this significant factor was fully and fairly considered[...]viability is an obvious issue[...]The agency recognized that Slate Lick Run road (FDR 230) is problematic[...]this draft EA reveals that the agency is not going to meaningfully address the problems associated with this road

01-#15-07 logging at a cutting site could kill or significantly injure Wood Turtles[...]They are active terrestrially on the GWNF from March-November (SK personal observation). They are predictably active in areas within 300 meters of streams. But this project only has "design elements" for a 300 feet zone, and only from May 1 to October 15, and only for mechanical logging activities (DEA-53-54). [...]intensive logging results in habitat that the Turtles prefer not to use for many decades (after the first very short-term flush of Blackberries).

01-#15-08 Burning of WT habitat should be avoided

01-#16-39 The Wood Turtle, listed as a Threatened species in Virginia, is known from this project area.[...]It is also on the GWNF list of Locally Rare species. As a Threatened, Sensitive, and/or Locally Rare species the agency has special obligations to the Turtles as regards protecting their habitat, distribution, and viability. Regardless of the Turtles' management category, the agency is responsible for ensuring the viability of all native vertebrates on the planning area. By not properly considering this species, a decision here would be in violation of the NFMA.

02-#09-01 The German River - North Fork Shenandoah River - Bennett Run SCU has been given a biodiversity significance ranking of B3, which represents a site of high biodiversity. The natural heritage resources of concern associated with this SCU are: Glyptemys insculpta Wood turtle G3/S2/NL/LT Aquatic Natural Community (RV-North Fork Shenandoah Second Order Stream) G2/S2/NL/NL The Sours Run - Runion Creek - Shoemaker River SCU has been given a biodiversity ranking of B2, which represents a site of very high significance. The natural heritage resources associated with this site are: Glyptemys insculpta Wood turtle G3/S2/NL/LT Aquatic Natural Community (RV-North Fork Shenandoah Third Order Stream) G2?/S2?/NL/NL[...]Please note that the Wood turtle is currently classified as threatened by the VDGIF.[...]In addition, Cold Spring River, Little Dry River and Slate Lick Branch are within 100-feet of the project areas have been designated by the Virginia Department of Game and Inland Fisheries (VDGIF) as "Threatened and Endangered Species Waters" for the Wood turtle.

02-#12-01 Burning Wood Turtle sites/habitat also may foreseeably result in significant damage or degradation or death to Turtle habitat, populations, and/or individuals, thereby significantly impacting viability and distribution on the Forest.[...]in the EA there is not a shred of information on population sizes, monitoring and inventory data for this species on the GWNF, estimates of mortality related to this proposal should it be implemented, or amounts of habitat degraded or destroyed and the effects on Wood Turtle distribution (nor was the BE available for review on line). For the agency to make a valid determination of no significant impact to this Sensitive species it must have this fundamental information and analyses.

02-#12-02 The burning and "restoration" and cutting should not occur within 300 meters of the occupied Wood Turtle streams.

02-#12-03 I am also concerned about the significant uncertainty as to the ecological results of the proposed burning, thinning, and even-age logging; at various sites the proposed heavy thinning and other logging could easily result in dense shrub layers that hinder herbaceous growth or overstory tree seedling regeneration (see Barton and Keeton 2018). It is not at all clear that this would improve habitat for Wood Turtles or other flora and fauna species/populations.

02-#12-05 Does the Forest Service have fundamental baseline population/demographic/distribution information about the Turtles here? Does the Forest Service have the most basic monitoring information about the Turtles here?

02-#12-06 One of the reasons expansive (relative to current stream buffers typically applied on the GWNF) protected zones are needed for the Turtles is not only to address the direct protection

of their "core habitat", but also to mitigate, diminish, or prevent "edge effects" that may also reduce habitat quality.

02-#12-07 Are there Wood Turtles at Camp Run, Little Camp Run, Lick Run, Buck Lick Run, Little Rough Run (Mitchell Knob/Camp Run WA); Dice Run, Wagner Run, Stony Run (West Side PA - not clear what you are proposing here - diagonal lines); Turner Run, Cross Mountain Run, Black Lick Run, Slate Lick Run, Buck Lick Run, Hogpen Run, Shoemaker River (Slate Lick/Cross Mountain WA); Old Road Hollow, Little Dry Run, Spruce Lick Run, Straight Hollow, Bible Run (Feltz Ridge/Leading Ridge WA) ? Around these streams are proposed burning, thinning, "regeneration harvesting", and/or road construction. I have been to most of these sites and there is certainly suitable habitat for Wood Turtles there. Who surveyed these sites for Wood Turtles, when, and how?

Response: Potential impacts to Forest Service Southern Region (R8) Regional Forester's Sensitive species, including the wood turtle (*Glyptemys insculpta*), were analyzed in detail in the Biological Evaluation (Forest Service, 2019d.) prepared for this project. Surveys for wood turtle were completed along stream reaches that are known or suspected to be occupied by wood turtles adjacent to proposed activity units in 2017-2018.

In 2018, the Northeast Wood Turtle Working Group published *A Guide to Wood Turtle Habitat Management* as an appendix to the Conservation Plan for the Wood Turtle in the Northeastern United States (Jones, Roberts, and Willey, 2018). It states that "while turtles have been documented traveling >0.5 mi from streams, the vast majority of movements occur within 100 feet, with a high-activity zone of 300 feet from streams". The project-specific design element including protection areas (300 foot buffers) along known wood turtle occupied streams is based on this science available in the literature. No harvest activity or road construction will occur in the riparian corridor as part of this project. In addition, spring seeps are wetlands considered part of the riparian corridor and are therefore avoided during any ground disturbing activity. Wood turtles are known to be tolerant of moderate development/ disturbance, such as timber harvest, light grazing, and low-intensity agriculture as well (Harding 1997, NatureServe, 2019).

The North Shenandoah project follows the recommendations prepared by the Northeast Wood Turtle Working Group for the USFWS. The Forest Plan also gives specific guidance regarding wood turtle management and several project specific design elements were also formulated to mitigate negative impacts to this species. Careful project implementation within these parameters will not lead to permanent wood turtle habitat degradation or a loss of species viability on the Forest or cause a trend towards federal listing under the Endangered Species Act. An electronic copy of the Biological Evaluation, containing detailed analysis for the wood turtle, can be viewed on the project website here: https://www.fs.usda.gov/project/?project=50342.

Wildlife - #6: The Forest Service should provide for public review the complete analysis for effects to black bear and other management indicator species (MIS), deer, neo-tropical migratory

songbirds, and Federally-listed or Regionally Sensitive species and their habitat to support the finding of no significant impact (FONSI).

01-#16-06 Black bear is an MIS here and throughout the GWNF[...]Yet, there is little, if any analysis of impacts to the black bear (DEA 115). Issues of negative impacts to the MIS black bear due to increased disturbance, stress, vulnerability which the project could foreseeably facilitate should receive a hard look.[...]Foreseeable negative impacts from the proposed action to most MIS must be thoroughly analyzed in the EA or EIS[...]The FS should provide hard inventory and population data for this MIS[...]The bears' present population numbers in this analysis area must be disclosed.

01-#16-07 Hollow trees, existing stumps, snags, shallow holes, and rock outcrops are potential bear den sites. These must be protected from logging.

01-#16-08 The road density, when both legally and illegally used motor routes are considered, may be in excess of that found to be desirable for bears. (there is little info in the SN) And the affects of miles of nearby access roads. must be properly analyzed

01-#16-18 The MIS are also insufficient for gauging impacts to truly area-sensitive species of mature interior forest (such as various warbler or tanager species). The MIS are not strictly interior species and/or are more habitat generalists and/or are not area-sensitive and/or are not site-sensitive.

01-#16-21 It is unclear how thoroughly the FS surveyed for neotropical migratory songbirds and TESLR birds, whether these species could be directly or indirectly harmed by the project, or what steps the FS will take to these species, and the effectiveness of these measures, since we have seen no BE/BA for the project.[...]The cerulean is recognized by the FS and others as an area-sensitive species [...]Other species are listed as area sensitive species in the SAA. The FS should consider the impacts to these area-sensitive species.[...]Several birds listed in Bird Species of Conservation Concern (USF&WS) 2002 are potentially found in this area (see BSCC p. 51). Impacts to these NTMBs should be analyzed.

02-#12-23 The EA/EIS disclosure must incorporate the recent bird study done on the GWNF in a nearby ranger district. See "Roadside Surveys: Changes in Forest Composition and Avian Communities with Distance from Roads"

02-#12-24 The direct, indirect, and cumulative impacts of Deer browsing and/or logging upon habitat degradation, species loss, population distribution, and future old growth must be fully analysed

Response: Management indicator species (MIS) are monitored at the Forest scale, because species population trends cannot accurately be analyzed at a project scale. In 2017, the George Washington and Jefferson NFs (GWJNF) *FY 2008-FY 2014 Monitoring and Evaluation Report* (Forest Service, 2017a.) included data for the management indicator species population trends across the entire Forest in Appendix G (Forest Service, 2017b.), including detailed discussion and trend analysis for each species. For avian species, population trend data is available from the Breeding Bird Survey (BBS) Program (administered by the U.S. Geological Survey (USGS) and from the GWJNF's avian point count monitoring program,

part of the Southern Region's avian point count monitoring program (Forest Service, 2017a.). Sources for data: http://www.mbr-pwrc.usgs.gov/bbs/bbs.html and Southern Region Avian Monitoring Database. Neo-tropical migratory bird surveys were completed visually and aurally within the project area, and data on game species (e.g. deer, turkey, and black bear) trends, which are monitored by Virginia Department of Game and Inland Fisheries (VDGIF) and West Virginia Department of Natural Resources (WVDNR) were reviewed during the EA process.

Timber harvest, prescribed fire, mechanical clearing, water source development, and other activities can provide for the ecological needs of MIS, by creating a mosaic of different age classes and habitats, well distributed throughout the planning area. This mosaic helps ensure that critical habitat requirements for a multitude of wildlife species are available on the landscape, when localized habitat conditions are lacking. The Forest Plan provides direction to protect snags, den trees/sites, and other wildlife trees (e.g. nest trees) during timber harvest and prescribed burning activities, as well as promote/retain soft mast species important in the diets of deer, bear, and turkey in Forestwide standards FW-35 and FW-36.

Wildlife - #7: The Forest Service should address the issue of forest fragmentation in its effects analysis.

02-#09-06 minimizing fragmentation is a key mitigation measure that will reduce deleterious effects and preserve the natural patterns and connectivity of habitats that are key components of biodiversity. DCR recommends efforts to minimize edge in remaining fragments, retain natural corridors that allow movement between fragments and designing the intervening landscape to minimize its hostility to native wildlife (natural cover versus lawns).[...]The proposed project will cause significant fragmentation of one or more highly significant cores with very high to outstanding ecological integrity. If any portion of a harvested area is not allowed to re-grow to forest (i.e. there is any development and thus permanent fragmentation of the core) further investigation of these fragmentation impacts is warranted.

02-#12-14 The proposed roading would not only result in forest fragmentation with ecologically harmful edge effects and degraded visual and recreational qualities, it will also provide an access route for illegal motorized activity and other human disturbance. Even if "closed" or "temporary", these roads facilitate harmful and undesirable motorized access (such as from ATVs) into the area, with consequent harmful and undesirable disturbance and impacts to wildlife.

02-#12-22 It is pertinent to an accurate affects analysis that edge and fragmentation effects are not considered as being confined to the percentage of an area or the number of acres in an area that are actually logged units[...]How and to what extent is the potential of all management proposals to further fragment the forest and ecosystem and watershed within which the project area exists? What is the impact on (potential) wildlife dispersal corridors?[...]The site-specific analysis must offer meaningful site-specific spatial analysis and disclosure regarding fragmentation.

Response: Thank you for your comments on fragmentation. Edge habitat is considered an important habitat for numerous game and non-game wildlife species as well as many plant species in the project

area. Creating more edge habitat is one of the habitat goals for the North Shenandoah project in order to benefit a large suite of wildlife and plant species, including several MIS and TES species.

Wildlife - #8: The Forest Service should explain how it intends to ensure species viability through the implementation of this project.

01-#15-05 The cumulative impacts of this project and innumerable others on this Forest and elsewhere (such as Molly's Hill TS), along with other actions and conditions, can potentially cause a loss of species viability on the Forest or cause a trend towards federal listing under the Endangered Species Act.

01-#15-17 A chief rationale for much of the current and proposed burning is to reduce so-called "hazardous fuels". Much of what is commonly referred to as "fuels", forest ecologists know as woody debris.[...]The incineration of forest material (viz., woody debris, litter, humus) not only directly destroys many small creatures, but also significantly alters the site quality for a great many other species, such as Wood Turtles and salamanders[...]The concern is about significant impacts resulting from the burns to the viability and distribution of species/populations/communities with limited mobility

01-#16-29 The Forest Service may not be harming "critical habitat" for the species or be jeopardizing the "continued existence" of the species overall, yet its viability on this particular Forest may still be jeopardized. NFMA requires that viability be maintained on this particular planning area, not just somewhere on the species entire range. It is this NFMA mandated viability on this particular Forest that the agency is not ensuring in this decision.

01-#16-37 The best science states that a major focus of analyses such as this should be to find ways to connect and buffer roadless areas with other undeveloped land to assure species viability and ecosystem functioning is perpetuated. In short, take a "hard look" at the cumulative impacts of allowing logging and road building in unroaded areas and in roaded areas providing corridors or linkages between core roadless areas.

Response: All species listed as Threatened, Endangered, or R8 Sensitive (TES) were analyzed in the Biological Evaluation (BE) (Forest Service, 2019d.) or Biological Assessment (BA) (Forest Service, 2019e.) prepared for this project. Potential impacts/effects to TES species from proposed project actions were analyzed in detail using the best available science, in the BE and BA. An electronic copy of the BE and BA can be viewed on the project website here: https://www.fs.usda.gov/project/?project=50342.

Wildlife - #9: The Forest Service should coordinate with the U.S. Fish and Wildlife Service (USFWS) and the Virginia Department of Game and Inland Fisheries (VDGIF) to ensure that this project complies with protected species legislation.

01-#16-28 As the Bats may be adversely affected, formal consultation with USFWS on this project needs to be reentered before any management ground disturbance activities occur.

02-#09-02 Due to the legal status of the Wood turtle, DCR also recommends coordination with VDGIF[...]to ensure compliance with protected species legislation.

02-#09-05 Due to the legal status of the Northern Long-eared bat and the associated final 4(d) rule effective February 16, 2016, if tree removal is proposed for the project DCR recommends coordination with the USFWS and the VDGIF to ensure compliance with protected species legislation.

Response: The Forest Service, as outlined in our Forest Plan, will coordinate with the appropriate state and Federal agencies during the analysis and implementation of the North Shenandoah project. These include the Virginia Department of Game and Inland Fisheries (VDGIF), the West Virginia Department of Natural Resources (WVDNR) and the U.S. Fish and Wildlife Service (USFWS). Coordination with the state agencies has been continuous throughout the planning process, and agency staff from both Virginia and West Virginia have attended every public meeting and provided detailed comments to the Forest Service. As stated in Chapter 3 of the Forest Plan:

> *An important aspect of managing habitat for species is the cooperative work with the Virginia Department of Game and Inland Fisheries, the Virginia Department of Conservation and Recreation Natural Heritage Program, the West Virginia Division of Natural Resources, and US Fish and Wildlife Service. The GWNF will continue the long tradition of working closely with these agencies in all management of species and habitat.*

Consultation with USFWS is complete regarding all Federally Listed Threatened and Endangered (T&E) species potentially impacted by this project. The USFWS is the agency that oversees direct management of animals and fish across the Nation, including administration of the Threatened and Endangered Species Act. The USFWS is responsible for listing T&E species on lands managed by the GWNF.

All species listed as Threatened, Endangered, or R8 Sensitive (TES) were analyzed in the Biological Evaluation (BE) (Forest Service, 2019d.) or Biological Assessment (BA) (Forest Service, 2019e.) prepared for this project. Potential impacts/effects to TES species from proposed project actions were analyzed in detail using the best available science, in the BE and BA. An electronic copy of the BE and BA can be viewed on the project website here: https://www.fs.usda.gov/project/?project=50342.

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